



The A district of the Toranomon-Azabudai District Category 1 Urban Redevelopment Project (Minato ward, Tokyo)



Shibaura 1-chome Plan Phase I (S Building) new construction (tentative name) after completion (Minato ward, Tokyo)

# Building Construction Business

We will use all of our strengths to create even more reliable construction production systems based on strong organizational alliances that include Shimizu group companies. We will work to transform the building construction business, which is the core of our construction business, to enhance quality and improve competitiveness. Our goal is to anticipate changes in society and customer needs, expand business domains, and build a stable revenue base.

Contributing to the achievement of SDGs through business activities



Mid-Term Management Plan (2019-2023)	
Key Strategies	Progress Status
<p><b>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.</b></p> <p><b>1. Improve productivity and sales capabilities</b></p> <ul style="list-style-type: none"> <li>■ Innovate our building production systems to improve productivity, save labor and increase cost competitiveness</li> <li>■ Segment strategically at the regional level, enhance upstream business development capabilities, and strengthen the PFI function</li> </ul> <p><b>2. Leverage technology to respond to customers' changing needs</b></p> <ul style="list-style-type: none"> <li>■ Innovate building construction operations through increased use of AI, BIM, digitalization and other advanced technology-based machines and construction methods</li> <li>■ Continue focused activities for nuclear power-related facilities, including plant decommissioning and next-generation power plants</li> </ul> <p><b>3. Expand renovations and enter new businesses</b></p> <ul style="list-style-type: none"> <li>■ 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.</li> <li>■ Identify and pursue opportunities for new business in building construction-related domains</li> </ul>	<p><b>1. Enhance capabilities in handling large-scale projects</b></p> <ul style="list-style-type: none"> <li>● We won orders for large-scale regional distribution facilities, hyper scale data centers, and more in addition to large-scale urban projects (super high-rise buildings, redevelopment projects, etc.)</li> <li>● We engaged in project-based technical development and on-site application (robots, Smart Station, etc.)</li> <li>● We established a consortium related to technical partnerships in the fields of construction robots and IoT</li> <li>● We installed world-class high-performance testing equipment (exterior curtain walls)</li> <li>● We advanced computational design utilization (enhancement of structural review function, etc.)</li> </ul> <p><b>2. Leverage technology to respond to customers' changing needs</b></p> <ul style="list-style-type: none"> <li>● Shimizu Group was selected for Tama Medical Campus improvement project (PFI)</li> <li>● We accepted orders for wooden architecture and ongoing technical development</li> <li>● We improved productivity by utilizing ICT (entrance/exit management using face authentication, work sites, etc.)</li> <li>● We prepared a SHIMZ CREATIVE FIELD proposal utilizing position information (customer tours combined with Toyosu Smart City)</li> <li>● We implemented building production process reform utilizing BIM (further promotion of Shimz One BIM)</li> </ul> <p><b>3. Strengthen Group companies' management capability</b></p> <ul style="list-style-type: none"> <li>● We improved management efficiency through restructuring of group companies, etc.</li> </ul>

## TOPICS

### Enhancement of competitiveness through project-based technical development, utilization of digital technology, etc.

Like their metropolitan counterparts, as projects in rural areas increase in size and diversity, we are accelerating our project-based development of new technologies.

In fiscal 2021, we developed the Shimz Diagonal Grid R Frame Method, which improves the earthquake performance and workability of super high-rise buildings using diagonal grid pillars on a 3D-curved surface to support the building and began proposing its use in actual projects.

In addition, we will make full use of cutting-edge digital technologies and continue to take on challenges and carry out strategic initiatives to win orders for a variety of projects, from facilities related to the growing sports business to semiconductor plants and other large-scale production facilities, hyper scale data centers, and Smart Cities.



Illustration of Manufacturing Building No. 2 (K2) and new administration building at Kioxia Iwate after completion (Kitakami City, Iwate)  
Manufacturing Building No. 1 (building at top right) completed in October 2019  
Manufacturing Building No. 2 (building at top left) to be completed in 2023

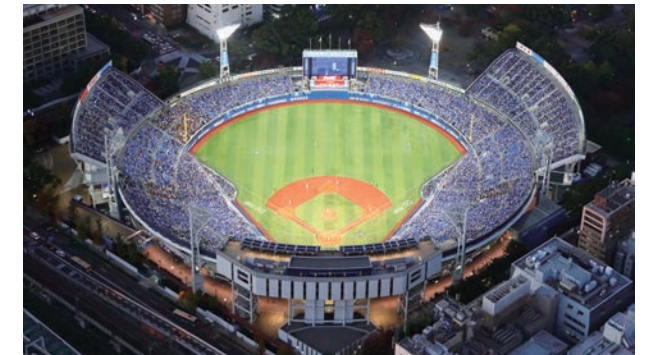
### Providing optimal services and solutions for building life-cycles (enhancing renovation business)

Under the group-wide renovation strategy, Shimizu is working to further enhance our renovation business by taking advantage of our solid construction track record and advanced environmental and BCP-related technologies.

In fiscal 2021, in addition to general office buildings and production facilities, we completed our fifth preservation project at World Heritage site Hiroshima Peace Memorial (Genbaku Dome) and the first preservation and repair work at the Nirayama Reverberatory Furnaces in 32 years. In addition, we completed expansion and renovation work at Yokohama Stadium (built in 1978 by Shimizu) in 2020 while the stadium was in use. Our aim in this project was to make the customer's concept of a "community ball park" a reality. We received the 31st BELCA Award (Best Remodeling Category) in 2021 for this work.

We will continue to provide optimal solutions for our customers'

needs corresponding to the building life-cycle and contribute to the creation of a sustainable future.



Expansion and renovation work at Yokohama Stadium (Yokohama City, Kanagawa) in 2020

### Initiative to enhance technological competitiveness through development of wood technology

The field of wooden architecture is gaining more and more attention from the standpoint of global environmental conservation. Shimizu has developed Shimizu Hy-wood, a hybrid technology that allows for optimal wooden architecture by combining wood, steel frames, and concrete where they are best suited. It satisfies the high earthquake resistance and fire resistance requirements of medium- and large-scale wooden buildings and can be used to erect buildings that offer excellent design, workability, and economic efficiency.

Leveraging this technology, we received four wooden architecture projects in fiscal 2021. Various project is currently underway. We will continue to actively develop our sales and proposal activities, create further projects, and expand our track record as we work to further enhance our technological competitiveness.



Illustration of Kyoiku Kyoso Commons after completion at Okayama University in Okayama City, Okayama (to be completed in 2022)



News Release  
SHIMZ CREATIVE FIELD, New Office Vision Using Digital Technology for the New Normal  
<https://www.shimz.co.jp/en/company/about/news-release/2021/2021020.html>





Funatani River Bridge on the Yonago Expressway (Kofu-cho, Hino-gun, Tottori), opened in October 2021 after completion of the upper section

# Civil Engineering Business

Shimizu responds precisely to the dynamic changes in the environment surrounding the civil engineering business by developing and using new technologies and expanding our business domains to new areas. These activities enable us to meet the construction needs of and solve problems for communities and customers. We will contribute to safe, secure, and abundant living for everyone through high quality public infrastructure.

Contributing to the achievement of SDGs through business activities

3

GOOD HEALTH AND WELL-BEING

7

AFFORDABLE AND CLEAN ENERGY

8

DECENT WORK AND ECONOMIC GROWTH

9

INDUSTRIAL INNOVATION AND INFRASTRUCTURE

10

REDUCED INEQUALITIES

11

SUSTAINABLE CITIES AND COMMUNITIES

13

CLIMATE ACTION

Mid-Term Management Plan (2019-2023)	
Key Strategies	Progress Status
<p><b>We will improve productivity and profitability by strengthening our organization and technological development, and will expand our business domains through external partnerships.</b></p> <p><b>1. Strengthen organizational capabilities</b></p> <ul style="list-style-type: none"><li>■ 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</li><li>■ Develop sales personnel with advanced customer response and communication skills</li></ul> <p><b>2. Improve productivity through technology and innovation</b></p> <ul style="list-style-type: none"><li>■ Full-scale implementation of i-Construction and CIM (Construction Information Modeling/Management); innovate production and management systems</li><li>■ Develop differentiating technologies in key areas including infrastructure renovation, disaster prevention and mitigation, and energy</li></ul> <p><b>3. Expand businesses</b></p> <ul style="list-style-type: none"><li>■ Grow the maintenance management and consulting businesses</li><li>■ Expand upstream and downstream business by strengthening design and technology core competencies</li></ul>	<p><b>1. Build a stable revenue base</b></p> <ul style="list-style-type: none"><li>● We received orders for large-scale, complex projects, including Lake Sagami headrace shield, Chuo Shinkansen Nagano Prefecture Station, and the Takenami section of Hi-yoshi Tunnel.</li><li>● We received an order to replace the Sugagaya elevated bridge floor slab on the Tomei Expressway in the field of large-scale expressway renovation.</li><li>● We added more civil engineers on an ongoing basis to secure a stable revenue base.</li></ul> <p><b>2. Promote and expand technological development</b></p> <ul style="list-style-type: none"><li>● We developed the world's first dual boom rock bolt driving machine (Rock Bolter) as an automation technology for construction of tunnels through mountains.</li><li>● We developed and implemented an on-site AI-based construction streamlining system called "Shimizu Shield AI" as a technology for automating tunnel planning and machine operation in shield construction and began working on automatic shield machine operations.</li><li>● We jointly developed a real-time automatic reinforcement inspection system with Sharp Corporation (for which we received multiple awards including the Minister of Land, Infrastructure, Transport and Tourism Award at the 4th Japan Open Innovation Awards).</li></ul> <p><b>3. Expand businesses</b></p> <ul style="list-style-type: none"><li>● We are constructing new concrete plant equipment for floor slab production in collaboration with SC Precon in the field of large-scale expressway renovation. We established a collaborative system with FaB-Tec Japan Corporation and THE NIPPON ROAD Co., Ltd. in the aim of proposing high-value-added technologies and winning joint venture construction orders.</li><li>● We launched design and manufacturing of the largest and highest performing mobile tower crane in Japan in collaboration with SC Machinery Corp. and IHI Transport Machinery Co., Ltd. to enhance competitiveness in the field of onshore wind power.</li></ul>

## Making mountain tunnel construction even safer

Generally, when constructing tunnels through mountains, holes are manually filled with mortar after the bedrock is drilled with a machine in order to prevent collapse of the ground after excavation, and then steel bars called rock bolts are inserted for anchoring. However, this manual labor is dangerous work that exposes workers to the risk of being caught up in a collapse of the wall face.

In the Maki Tunnel work (ordered by NEXCO Central) we are currently performing on the Tokai Hokuriku Expressway, we are trying out the world's first dual boom rock bolt driving machine (manufactured by Furukawa Rock Drill Co., Ltd. and called "Rock Bolter") to eliminate such dangerous work, and it allows a series of work to be performed completely by machine. Eliminating manual work not only improves safety but also helps save manpower.

We will continue making further improvements to achieve more manpower savings and greater safety.



Fully mechanized rock bolt work (using "Rock Bolter")  
Maki Tunnel work on Tokai Hokuriku Expressway (Nanto City, Toyama)

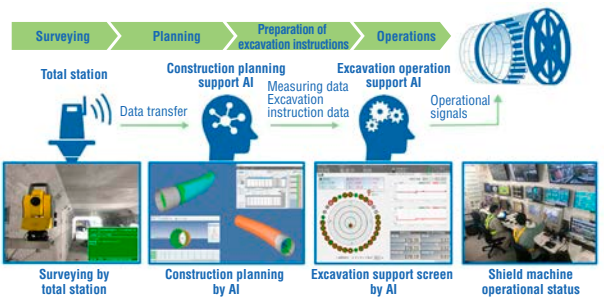
## Two 2021 i-Construction Grand Prizes won

The i-Construction Grand Prize was founded in 2017 by the Ministry of Land, Infrastructure, Transport and Tourism as a program to recognize outstanding efforts to improve productivity at construction sites.

In 2021, Shimizu received two prizes, one for Construction Work on Tunnels at Tokyo International Airport and one for Visualizing and Advancing Site Management by Fully Utilizing Digital Tools. The former was shield tunnel work, and we were recognized for our automation of construction planning and excavation operations utilizing AI. The latter involved construction of extremely complicated structures at underground stations, which we streamlined by combining 3D models with cloud management systems, VR, and AR.

We will roll out this construction and management technology utilizing ICT to construction sites all over Japan while further developing it.

## TOPICS



Shield tunnel construction utilizing AI  
Construction Work on Tunnels at Tokyo International Airport (Ota ward, Tokyo)

## Otonaka Tunnel construction completed in Hokkaido after overcoming difficulties

The Otoineppu Bypass is a bypass on National Route 40 from Otoineppu Village to Nakagawa Town in Hokkaido. The work was performed to improve traffic punctuality and safety by reducing accidents and eliminating issues caused by avalanches.

Within this 19.0-kilometer section, we constructed the Otonaka Tunnel, which was the longest we have constructed to date (at a total length of 4,686 meters). When excavating the tunnel, we struggled with cracks and upheavals in the ground and deformation of the tunnel arch arising from the fragile serpentine rock formations. We completed the 12-year construction in June of this year after overcoming the difficulties in the work by implementing various measures such as adopting a circular triple support system and the center drift advancing method.

We will continue to contribute to local communities by persistently working on this kind of difficult construction projects.



Cross-section closure of main tunnel in center drift advancing method Otonaka tunnel excavation work in Otoineppu Village on National Route 40 (Otoineppu Village to Nakagawa Town in Nakagawa District, Hokkaido)





National Cancer Centre in Singapore, the largest proton therapy center in Southeast Asia

# Overseas Construction Business

Shimizu utilizes its technological and proposal capabilities cultivated as a construction general contractor to pursue local business activities in many countries worldwide. We bring together our expertise in construction and design technology as well as real estate development, engineering, energy, the environment, and a wide range of other businesses to demonstrate Group integrated strengths and provide optimal solutions for diverse range of needs around the world.

Contributing to the achievement of SDGs through business activities



Mid-Term Management Plan <2019-2023>	
Key Strategies	Progress Status
<p><b>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.</b></p> <p><b>1. Improve profitability of projects</b></p> <ul style="list-style-type: none"><li>■ Establish competitive advantage for projects requiring advanced technology and expertise</li><li>■ Increase Design and Build projects in new markets</li></ul> <p><b>2. Build organizational capabilities</b></p> <ul style="list-style-type: none"><li>■ Retain and develop more global talent to deliver highly complex projects, grow related businesses, and increase resiliency</li><li>■ Strengthen proposal skills through greater internal collaboration (process engineering for production facilities, BCP, and renovation)</li></ul> <p><b>3. Expand and broaden global presence</b></p> <ul style="list-style-type: none"><li>■ Build global alliances with leading companies in construction-related fields, IT, real estate development, smart cities, and renewable energy</li><li>■ Grow the PPP, infrastructure operations, construction management and consulting businesses</li></ul>	<p><b>1. Improve profitability of projects</b></p> <ul style="list-style-type: none"><li>● Pursued a diverse range of projects that capitalize on Shimizu's strengths in design, construction, and advance technology (built ultra high-rise buildings, advanced medical facilities, and luxury hotels in addition to production facilities and public infrastructure)</li></ul> <p><b>2. Build organizational capabilities</b></p> <ul style="list-style-type: none"><li>● Seized the opportunity presented by COVID-19 to accelerate digital transformation (DX) of job site management</li><li>● Built operations led by local personnel with an eye toward the future</li></ul> <p><b>3. Expand and broaden global presence</b></p> <ul style="list-style-type: none"><li>● Collaborated on Trinity Tower and other real estate development projects</li><li>● Collaborated with other businesses in the Shimizu Group to develop greater depth in business expansion.</li></ul>

## Steady growth in medical facility and office building construction record (building construction)

While Shimizu builds a diverse array of production facilities, we are also focusing on construction of medical facilities, ultra high-rise and large office buildings, and multipurpose complexes around the world. We have used our expertise and extensive record in Japan to complete construction of numerous medical facilities in Singapore, Taiwan, and Africa. Construction of another medical facility is also underway in Singapore. We are currently designing and building of a large office building in Singapore and an ultra high-rise office building and multipurpose complex in Indonesia. Shimizu has completed a series of buildings worthy of being called landmarks. We will continue to hone our advanced technological and steadfast response capabilities to solve the issues that each country faces.



Radiation Science and Proton Therapy Center (Taipei)

## Contributing to the growth of Asia and Africa through infrastructure construction (civil engineering)

Shimizu adapts each project to the construction conditions specific to each country as we build public infrastructure that will facilitate economic growth and respond to urbanization in different countries. We have shared the expertise and knowledge of Japan and hired and trained local talent as we worked on such projects. In Asia, Shimizu completed Phase I and is working on Phase 2 of the MRT\*<sup>1</sup> North-South line construction project in Jakarta. In Manila, we are constructing the rail yard for the first subway and LRT\*<sup>2</sup> in the Philippines. Shimizu has worked on numerous transportation projects in the capital cities of Singapore, Vietnam, Taiwan, Hong Kong, and other countries. Shimizu is involved in two projects in Africa. In Uganda, we are building a bridge over an intersection and performing other road improvements to alleviate chronic traffic jams in the capital of Kampala. In Ghana, we are performing construction

## TOPICS

to renovate a national highway that connects the second largest city to the major international artery on the coast.

\*1 Mass Rapid Transit that includes a subway

\*2 Light Rail Transit



Jakarta MRT North-South line, which includes the first subway in Indonesia



Road improvement to build a bridge over an intersection in Kampala, Uganda

## Corporate regional headquarters centralizes management of the North American business

In April 2020, we established Shimizu America Inc. as the regional headquarters of North America to integrate management and operation of our North American businesses. This integration is facilitating business expansion by speeding up decision-making, creating synergies between businesses, aiding the roll out of businesses tailored to local characteristics, and enabling detailed management.



News Release  
Shimizu JV Awarded Contract for Jakarta MRT North-South Line Phase 2, Following on Phase1  
<https://www.shimizu.co.jp/en/company/about/news-release/2020/2019049.html>





MiChi no Terrace Toyosu (Koto ward, Tokyo) opened in April 2022



Contributing to the achievement of SDGs through business activities



# Investment and Development Business (Real Estate Development Business)

We are expanding our business domains and areas, bearing in mind the optimal business portfolio for further growth of the Investment Development Business (Real Estate Development Business). We will realize comfortable and efficient urban development leveraging the technology and collective strength of the Shimizu Group. To expand building stock business for the entire Group, we will form a private REIT and work on developing and implementing a real estate value chain.

Mid-Term Management Plan (2019-2023)	
Key Strategies	Progress Status
<p><b>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.</b></p> <p><b>1. Expand asset portfolio</b></p> <ul style="list-style-type: none"> <li>■ Increase the amount of assets for sale and lease</li> <li>■ Expand the logistics facility business and develop other growth markets</li> </ul> <p><b>2. Create new value through all facets of urban development</b></p> <ul style="list-style-type: none"> <li>■ Create new value in office buildings through ecoBCP, renovation, and innovations in sustainability</li> <li>■ Increase activities in regionally focused community development and large scale urban planning and development</li> </ul> <p><b>3. Optimize overseas portfolio</b></p> <ul style="list-style-type: none"> <li>■ Diversify the countries targeted for investment based on growth potential and risk profile <ul style="list-style-type: none"> <li>i : Singapore: New development and leasing of offices and other buildings, and re-development of former company sites</li> <li>ii : ASEAN: Housing development lots, development and leasing of offices and other buildings</li> <li>iii : U.S.: Renovation and development to increase the value of existing properties, and new development of rental housing and industrial properties</li> </ul> </li> <li>■ Strengthen alliances</li> </ul>	<p><b>1. Expand businesses leveraging the steady growth and strengths of our core businesses</b></p> <ul style="list-style-type: none"> <li>● In Japan, we completed development of 10 properties, including Yokohama Gran-gate, S.LOGi NIIZA, and MiChi no Terrace Toyosu, and acquired six existing build-ings (adding approximately 510,000 square meters of rental real estate).</li> <li>● We completed construction of the office building and hotel building of the Toyosu 6-chome plan, which is a large-scale development utilizing digital technology, ICT, and smart city technology. The entire district, which is now open, has been named MiChi no Terrace.</li> <li>● We acquired existing office buildings, including Ginza Shimizu Building and Kanda SP Building, for future development.</li> <li>● We started development work on S.LOGi Fukuoka Airport, which will be the first cold storage logistics facility in Kyushu.</li> <li>● We established an asset management company to launch a private REIT in order to expand the Group's asset management business.</li> </ul> <p><b>2. Optimize overseas business portfolio</b></p> <ul style="list-style-type: none"> <li>● Overseas, we completed development of three properties, including in the Robinson Road project in Singapore, and acquired four properties in New York, including Al-bano Building (adding approximately 100,000 square meters of rental real estate).</li> <li>● We acquired two rental office buildings in Boston, Massachusetts, USA jointly with a local partner, and plan to invest around 1 billion yen to improve the value by ex-panding infrastructure facilities.</li> <li>● Utilizing our group-wide sales network, we are securing excellent local partners and promoting efforts to put together new projects.</li> </ul>

## TOPICS

### Grand opening of MiChi no Terrace mixed-use development

MiChi no Terrace had its grand opening on April 15, 2022, and we held an event. This development is a mixed-use development block with a total floor area of approximately 120,000 square meters centered on a large-scale rental office building and one of the largest hotels in the Toyosu area. A traffic square serving as a terminal for highway buses and BRT is located at the center of the development. Above it is a deck area which is operated as Toyosu MiChi no Eki, an urban roadside station that acts as a transportation hub, a place of communication and interaction, and a disaster response hub. The development is located in the area of Toyosu Smart City, which was selected by the Ministry of Land, Infrastructure, Transport and Tourism as a smart city advance model project. A “digital twin city” has been built fusing physical and cyber spaces.

### Shimizu Real Estate Asset Management Corp. established

In August 2021, we established Shimizu Real Estate Asset Management Corporation for the launch of a private REIT in fiscal 2022. We are positioning the formation of a private REIT as one means of expanding our real estate related business. Shimizu intends to build the portfolio for the private REIT mainly around properties offering both environmental performance and BCP functions that the Group has developed, designed, and constructed. We also aim to maintain and enhance long-term stable property value by continuing to provide property management services by the Shimizu Group.

Proceeds from the sale of properties to the private REIT will be reinvested in new development properties. We expect the supply of high-quality properties to communities to lead to growth of our real estate development business.



Illustration of new company

### Office buildings acquired on main street of Boston

In February 2022, we acquired office buildings at 535 and 545 Boylston Street in the Back Bay neighborhood of Boston, Massachusetts through U.S. subsidiary, Shimizu Realty Development (U.S.A.), Inc. Boylston Street is a main street of Boston, and these properties are in a popular area with many office buildings, restaurants, and commercial facilities. Demand for R&D offices, especially for life sciences companies, is on the rise in Boston, which is an academic city. As such, on top of the current stable revenue, we aim to further increase the value by enhancing the fixtures and equipment on some floors to support R&D offices.

Shimizu plans to further expand investment in North America, adding these properties to our portfolio after previously acquiring the Albano Building, a rental office building in New York City, in 2019 and The Shaw, a luxury apartment building in Washington, D.C., in 2020.



Office buildings located at 535 and 545 Boylston Street in Boston (USA)

### Groundbreaking on Nagoya Marunouchi 1-chome Plan for development of large-scale rental office building

Construction commenced on the Nagoya Marunouchi 1-chome Plan for development of a large-scale rental office building, a joint project of Shimizu Corporation, Fukoku Mutual Life Insurance Company, and Shimizu Comprehensive Development, in October 2021. The plans are based on the concept of an office that can accommodate diverse work-styles and fulfill the three functions of adaptation to the new normal, environmental friendliness, and BCP response.

In August 2021, the building was selected for the Leading Project for Sustainable Buildings (CO<sub>2</sub> reduction) by the Ministry of Land, Infrastructure, Transport and Tourism. This was in recognition of the introduction of cutting-edge AI/IoT technology centered on our DX-Core building OS, the creation of spaces for new normal workstyles featuring shared conference rooms exclusively for tenants and co-working spaces, and the advanced office model featuring new air conditioning and lighting systems offering both energy savings and support for diverse workstyles. We will continue to concentrate the collective strength of Shimizu on completing the construction in January 2024 to realize an advanced office building for the new normal.



Exterior perspective drawing of Nagoya Marunouchi 1-chome Plan (Nagoya City, Aichi)





SEP\* vessel for construction of offshore wind power plant (under construction) \* Self-Elevating Platform

Contributing to the achievement of SDGs through business activities



# Engineering Business

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.

## Mid-Term Management Plan (2019-2023)

### Key Strategies

### Progress Status

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

#### 1. Expand the EPC Business

- We co-created with customers from the upstream stages of projects and received EPC orders that integrate the process from planning through execution.
- In the field of offshore wind power, we moved forward on building a system of execution, including SEP vessel building and an alliance with a leading European company, to begin working on projects off the coast of Nyuzen, Toyama, inside Ishikari Bay New Port in Hokkaido, and others.
- We worked on construction of seven power generation facilities in the onshore wind power field.
- By further enhancing our environmental clean-up technology, we worked on landing orders in Japan and abroad centered on soil contamination countermeasures.
- We strengthened our solution proposals for addressing the needs of a decarbonized society, factoring in manufacturing energy at plants on top of our smart factory efforts, and worked on cultivating plant projects.
- Combining the BECSS integrated building management system, edge AI, and the DX-Core building OS, we proposed ICT solutions for a wide range of customers and facilities.

#### 2. Enter new markets

- We developed VR-Commons, a new educational system utilizing VR, and proposed it to educational institutions.
- We carried out demonstrations for the practical application of floating offshore wind turbines in collaboration with other companies.

#### 3. Establish a foundation for the Global Business

- We established locations in Vietnam and the United States to promote sales activities and collaboration with local companies.

#### 4. Diversify our revenue base

- We built a system for service provision to continuously respond to customer needs through updates to building functions and added value in the development of our DX-Core building OS business.

## TOPICS

### Energy field

#### Promoting construction of onshore wind power projects

Aiming to capture the top share of wind power plant EPC, we have steadily built a system for execution that includes an alliance with a leading European company and strengthening of human resources in preparation for the completion of SEP vessels and the launch of actual projects in the field of offshore wind power. In fiscal 2021, we worked on construction of seven power generation facilities (total of 116 wind-mills with a total capacity of 455.5 MW) in the field of onshore wind power while also planning new projects and engaging in marketing activities.



ReENE Rokkasho-Mura Wind Power Plant (Rokkasho-mura, Kamikita-gun, Aomori)

### 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 plans to roll out these technologies throughout Southeast Asia, we have signed an agreement on technology exchange in the field of cleaning up soil and groundwater contamination with the Bandung Institute of Technology in Indonesia. Going forward, we aim to work on verification of the feasibility of applying our technology in soil and groundwater environments that differ from those of Japan and implement environmental cleanup projects.



Joint holding of workshop on soil and subterranean water contamination with Bandung Institute of Technology (Indonesia)



#### News Release

Leading European Company and Shimizu Conclude an Alliance for the Offshore Windfarm Construction

<https://www.shimz.co.jp/en/company/about/news-release/2021/2021022.html>

### Plant field

#### Completion of Shiseido Osaka-Ibaraki Plant/West Japan Distribution Center

We provide turnkey engineering integrating production equipment and buildings covering everything from planning and design to trial operation. In this project, we created a 3D model of the overall manufacturing room in the planning stage and shared an illustration of the work situation for all involved, including operators, from the equipment layout plan to the flow of people and goods. In addition to increasing the accuracy of construction, we worked on improving the manufacturing process.



Lotion Manufacturing Room at Shiseido Osaka-Ibaraki Plant (Ibaraki City, Osaka)

### ICT field

#### Developing VR-Commons®\* hands-on collaborative learning system

As the only ICT-specialized engineering business unit of a general contractor, we have developed a large number of solutions that address diverse facility applications and changing customer needs. VR-Commons is a VR system that creates a forum for group and hands-on learning. We are providing a new collaborative learning environment for the changing landscape of education, including the normalization of online classes amid the COVID-19 pandemic.

\*VR-Commons is a registered trademark of Shimizu Corporation in Japan.



Group learning using VR-Commons





Solar power generation PPA<sup>\*1</sup> on campus at Josai University (Sakado City, Saitama)

# LCV

Shimizu will create value over the lifecycle of buildings and infrastructure, energy, and communities and improve user satisfaction to build a sustainable future based on the business concept of LCV (Life Cycle Valuation).<sup>\*2</sup>

<sup>\*1</sup> PPA: Power purchase agreement  
<sup>\*2</sup> LCV (Life Cycle Valuation): Utilizing renewable energy, IoT, AI, etc. to provide comprehensive services and solutions including investment and partnership.



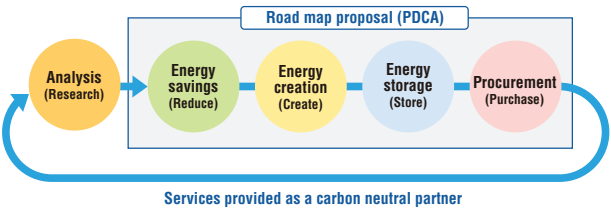
Mid-Term Management Plan <2019-2023>	
Key Strategies	Progress Status
<p><b>Shimizu will create value and improve user satisfaction over the lifecycle of buildings, infrastructure, and communities by providing a diverse range of services such as energy and management and operation.</b></p> <p><b>1. Expand service businesses</b></p> <ul style="list-style-type: none"><li>■ Become a one-stop Building Service Provider (BSP) through facility operations based on equipment servicing and further expand Facilities Management, Property Management, and Building Management businesses with group alliances and advanced technology</li><li>■ Provide health and well-being to users through the WELL (wellness) service business</li></ul> <p><b>2. Expand power and concession businesses</b></p> <ul style="list-style-type: none"><li>■ Expand power generation and supply of renewable energy sources</li><li>■ Strengthen infrastructure concessions business for airports and roads</li></ul> <p><b>3. Leverage advanced technology to promote services business and create smart cities</b></p> <ul style="list-style-type: none"><li>■ Create an infrastructure and facilities database, participate in new businesses using IoT and AI for cutting edge community development (voice navigation service, location information service, etc.)</li><li>■ Create smart cities by building an urban OS (Operating System)</li></ul>	<p><b>1. Expand facility management services in response to changes in the social environment</b></p> <ul style="list-style-type: none"><li>● Shimizu expanded business activities that create value and provided services and solutions using the themes of zero carbon, the new normal, and digital as entry points.</li><li>● To achieve the goal of eliminating carbon emissions, we began rolling out our carbon neutral partner service to support our customers in their efforts (three projects)</li><li>● We enhanced our WELL Certification consultation service (three certifications acquired and 14 consultations underway).</li><li>● We built an efficient operating system and strengthened the management structure through the use of digital tools.</li></ul> <p><b>2. Expand various renewable energy and power generation projects and strengthen infrastructure management initiatives</b></p> <ul style="list-style-type: none"><li>● We launched operations at three solar power plants (total of 36.5 MW).</li><li>● We run renewable energy power plants (total of 72.5 MW).</li><li>● We accelerated our solar, wind, biomass, geothermal, and small-scale hydroelectric power generation efforts</li><li>● Wholly owned subsidiary Smart Eco Energy expanded its electric power retail business.</li><li>● Our PPP Business Unit strengthened its system for working in the infrastructure management business.</li></ul> <p><b>3. Accelerate the expansion of the ICT service business and smart cities</b></p> <ul style="list-style-type: none"><li>● We introduced a voice navigation system for National Museum of Emerging Science and Innovation (Mirai) and Toyosu Smart City.</li><li>● We used the opening of the Toyosu 6-chome redevelopment project to accelerate creation of a smart city encompassing the entire Toyosu area and contributed to new community development.</li></ul>

## BSP field

### Carbon neutral partner

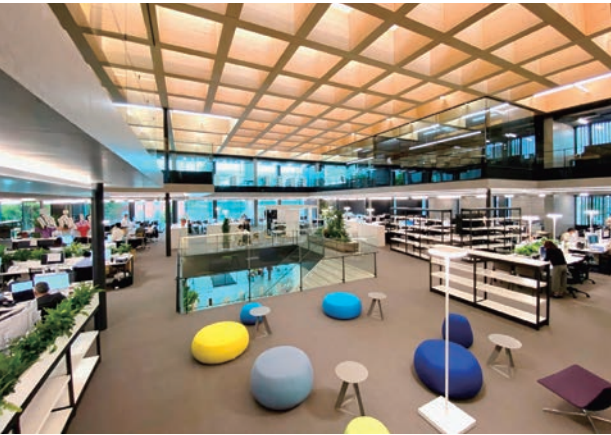
To achieve the goal of eliminating carbon emissions, we will develop a carbon neutral partner service to support our customers in their efforts. Analyzing current energy use, we propose optimal energy savings, energy creation, energy storage, and procurement via the latest technology according to the facility conditions and customer needs.

At Josai University, we prepared and proposed a road map for eliminating carbon emissions based on an energy analysis. As the first step, solar panels were installed on idle land on the campus, and we provide an on-site PPA service supplying green electric power. The university is able to procure green electric power at the same electricity rate as before with no initial investment. We will continue to roll out these efforts, including further proposals, in various fields.



## WELL certification

We provide a consulting service for acquiring WELL Certification, which is a certification for buildings that take health and well-being into consideration as it becomes increasingly important to contribute to the new normal and SDGs and communicate such efforts to society. The diverse projects we have worked on in Japan and overseas include not only new buildings but also existing facilities. In the future, we will expand the service to include other certifications such as CASBEE-Wellness Office.



Shimizu Corporation Hokuriku Branch where WELL Certification was acquired (Kanazawa City, Ishikawa)

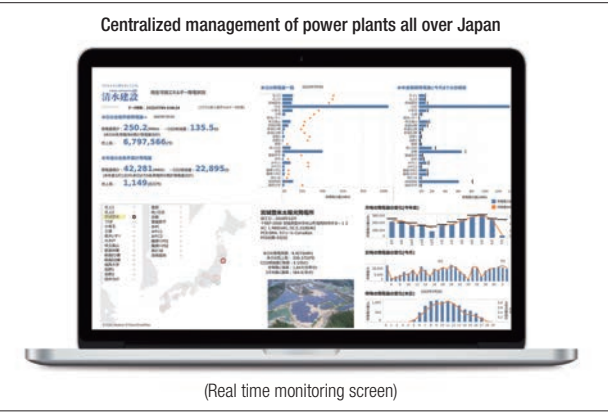
## TOPICS

## Renewable energy and power generation field

We are engaged in research and development on wind power, solar power, biomass power, hydropower, geothermal power, and more for the expansion of renewable energy. In the field of solar power, we launched operations at the Tsukuba Farmland Solar Power Plant and the Omitama Solar Power Plant. In the field of geothermal power, we are conducting research for development of geothermal resources in the southern area of Omatsukurayama, Shizukuishi-cho, Iwate-gun, Iwate. We also engage in centralized management of power plants all over Japan.



Geothermal power in southern area of Omatsukurayama (Iwate-gun, Iwate)  
<sup>\*</sup>Feasibility study underway



## Electric power retail field

In addition to expanding its retail business based on electric power from renewable energy, our wholly owned subsidiary Smart Eco Energy has begun selling renewable energy certificates, which is environmental value included in power generated from renewable energy. Through decarbonization solutions such as environmental value and environmental consulting, it will contribute to the realization of a sustainable future for companies and society, leveraging the knowledge and experience cultivated by the Shimizu Group.







Small rocket launching business (image courtesy of SPACE ONE)

# Emerging Frontier Business

Shimizu will contribute to the sustainable development of the earth and humankind by expanding the sphere of human activities from “onshore” to “offshore,” and from “earth” to “space.” We will also contribute to climate action and conservation of the global environment through our Harmony with Nature Business and invest in startups to lay the foundation for the next generation.

Contributing to the achievement of SDGs through business activities

2

Zero waste

4

Quality education

8

Decent work and economic growth

9

Industry, innovation and infrastructure

11

Sustainable cities and communities

12

Responsible consumption and production

13

Climate action

14

Life below water

15

Life on land

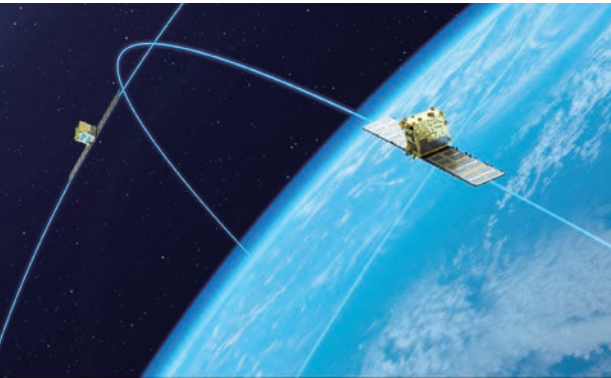
17

Partnerships for the goals

Mid-Term Management Plan (2019-2023)	
Key Strategies	Progress Status
<p>Shimizu will contribute to the sustainable development of the earth and humankind by expanding the sphere of human activities from “onshore” to “offshore,” and from “earth” to “space.”</p> <p>We will contribute to global environmental protection and regional vitalization through measures to combat climate change by co-existing in harmony with nature.</p> <p>We will invest in promising venture companies as a strategic move for the next generation.</p> <p><b>1. Expand ocean and space businesses</b></p> <ul style="list-style-type: none"><li>Create a new market for “ocean cities of the future” and establish a one-stop business model for design, construction, and facility management</li><li>Enter the small rocket launching business, develop businesses that utilize satellite data, and pursue R&amp;D on use of lunar resources, construction of lunar structures, and other uses of the moon</li></ul> <p><b>2. Launch environmentally innovative agri-businesses</b></p> <ul style="list-style-type: none"><li>Further development of plant factory business with a closed farming system</li><li>Production of microalgae, a highly efficient method of producing non-animal proteins and fats, bioplastics (new materials derived from wood), and other forms of petrochemical-free materials</li><li>Utilize agricultural crop residues and revitalize local agriculture</li></ul> <p><b>3. Invest in next-generation construction technology and global-scale solutions</b></p> <ul style="list-style-type: none"><li>Enter new businesses by investing in promising venture firms and cultivating current collaborations</li></ul>	<p><b>1. Develop a business model for ocean city development</b></p> <ul style="list-style-type: none"><li>We promoted group-wide technological development related to floating design, construction, maintenance, and management.</li><li>We are working on activities to win orders for floating structure projects.</li></ul> <p><b>2. Lead the new era of space business as a general space company</b></p> <ul style="list-style-type: none"><li>We promoted commercialization of our small rocket business.</li><li>We promoted commercialization of our satellite data utilization business.</li><li>We promoted moon development use.</li></ul> <p><b>3. Build an agriculture and fisheries business for bringing about environmental innovation</b></p> <ul style="list-style-type: none"><li>We managed agricultural projects (strawberry cultivation project in Hokkaido and regional agricultural cooperative in Kochi).</li></ul> <p><b>4. Invest in next-generation construction technology and new global solution businesses</b></p> <ul style="list-style-type: none"><li>We acquired next-generation construction technology utilizing corporate venture capital.</li></ul>

## Space development business

We will promote the development of various applications of our proprietary satellite positioning analysis technology as a satellite data utilization business, starting with construction management, such as for detecting subtle displacement or deformation of ground surfaces and large-scale structures and surveillance of heavy equipment. In addition, we aim to develop products that leverage the technological advantages of both the Synthetic Aperture Radar (SAR) analysis technology of Synspec Inc., which we are investing in, and our proprietary satellite positioning analysis technology.



Strix-α, a small SAR satellite (Synspec Inc.)

## Ocean development business

We are developing technology for floating structures and proposing Float City to solve social issues such as rising sea levels caused by global warming and land shortages associated with the concentration of populations in cities. We are also combining our planning capabilities in building construction for housing, infrastructure, and energy-related facilities with our offshore civil engineering technical capabilities to take on the challenge of creating a new market for using the space above the ocean surface.



Illustration of city coast with GREEN FLOAT II installed offshore



News Release  
Investment Allowance of 10 Billion Yen Set for Active Investment in Venture Firms in Japan and Overseas  
<https://www.shimz.co.jp/en/company/about/news-release/2020/2020012.html>

## Harmony with nature business

As the creation of a society in which people coexist with nature is promoted, we are working on new businesses in the field of harmony with nature, including agriculture, forestry, and fisheries. Up to now, we have taken on strawberry cultivation in Hokkaido and coordination of agricultural produce shipments in Kochi, and we aim to contribute to community vitalization through these businesses.



Tomato Farm

## Business investment (Start-ups)

To strengthen R&D and expand our business domains, we have established an investment budget of 10 billion yen to invest in venture companies and venture funds. We will invest flexibly in promising ventures in Japan and abroad in collaboration with our Us-based Silicon Valley Innovation Center and work on technical demonstrations and open innovation activities to create new business models.



Target areas for corporate venture capital investment