

Special Content 1: Technology Strategies

Collaboration Between Technology Development and Intellectual Property Fields

Our goal is to achieve the sustainable future society set forth in SHIMZ VISION 2030. we are developing technologies and solutions through close collaboration with our intellectual property department in order to meet the needs of society and clients.

NOVARE Lab

This innovation hub is equipped with a large-scale experimental space for developing structures, materials, robotics, and other construction technologies. In the future, we will conduct future research and development at NOVARE through partnerships both inside and outside Shimizu Corporation.

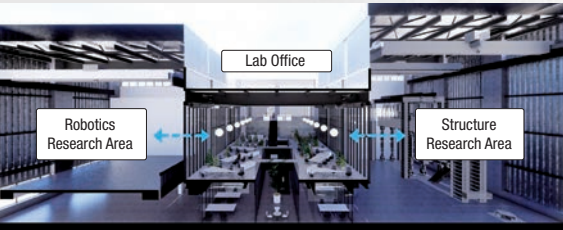
- Combined the most advanced and highest class of experimental facilities in Japan
- Collaboration between different fields of structures, materials, and robotics
- Integrated space that connects three research areas and a lab office

In the Structure Research Area, the latest, top-class structural testing equipment in Japan was deployed to verify large-scale structures, such as those used in skyscrapers. This helps secure the safety of structures that will support future society. In the Materials Research Area, materials that will address social issues are researched and developed. In addition to manufacturing and verifying the next-generation concrete that will meet high-strength and environmentally friendly needs, we will create new value for other construction materials.

In the Robotics Research Area, we have taken on the challenge of developing construction robots, 3D printing, and other technologies that will revolutionize construction worksites. We are also developing a collaboration platform that links building facilities to autonomous service robots, and testing the operation of self-driving vehicles using the facility exterior.



Largest construction 3D printer in Japan



Lab Office workspace is provided at center of building to facilitate communication

Our technologies and solutions that are ahead of their times will help realize a sustainable future society where people can enjoy prosperity and happiness



Akira Yamazaki
Senior Managing Officer
Director, Construction Technology Div.,
Building Construction Headquarters,
In charge of Technology and Intellectual Property

Technology Development

We have established company-wide, cross-organizational technology strategies. Our basic concept is to anticipate diversifying needs and take swift action to secure stable quality and improve profitability in the construction business, and enhance our business portfolio. Particularly in the field of GX, we are focusing our efforts on developing technologies and solutions for decarbonization, recycling resources, and creating a society that coexists harmoniously with nature. These are aimed at achieving the Group environmental vision, SHIMZ Beyond Zero 2050. By also incorporating the remarkable advances made in generative AI and other digital technologies, we will raise the level of DX and contribute to solving issues facing society and our clients. Azabudai Hills is a skyscraper building complex that was completed last year. Through such projects, we have mastered technologies for the safe and high-quality construction of buildings exceeding 300 m. We will apply these techniques to future projects to meet the increasingly advanced demands of society. Construction based on wooden architecture is also sparking great social interest due to its decarbonization benefits. To encourage adoption, we are developing technologies to make up for the earthquake and fire resistance disadvantages of wood. Applying these technologies will enable the use of wood in medium- to high-rise buildings. We are already planning or implementing these technologies in various projects. We are also pro-actively developing DX technologies, including AI, from a wide range of perspectives. These include the conservation of historic buildings, facility control, and improving the efficiency of design work, which will lead to work style reform. These technological developments have resulted in new technologies that have been highly rated by society. For example, BILMUS^{*1} is a fourth kind of earthquake countermeasure technology after earthquake resistance, structural control, and seismic isolation. SUS-MICS[®]-C^{*1} is a concrete that achieves carbon negativity through its use of biochar. AI Shield automates shield machine tunneling using AI. Super Water-repellent Formwork^{®*2} revolutionizes the finishing of concrete surfaces using biomimetic technology.

^{*1} BILMUS, and SUSMICS, are registered trademarks of Shimizu Corporation in Japan.
^{*2} Super Water-repellent Formwork is registered trademarks of Shimizu Corporation and Toyo Aluminium K.K. in Japan.

Intellectual Property

An invention and design system was established at Shimizu Corporation more than 50 years ago. We have a deep-rooted invention mindset where the entire company comes together to create inventions and integrate our technical capabilities to contribute to further growth. We file about 300 patent applications every year, among the highest in the construction industry. We have maintained this top-ranking position for many years. To contribute to improving corporate value now and in the future, we have promoted intellectual property acquisition, use, and risk management. We offer support and improve added value through close collaboration between our intellectual property department and technology development. Recently, to use our developed technologies and other intellectual property even more effectively, we established a new unit responsible for the strategic use of intellectual property. We also promoted the deployment of intellectual property by further strengthening collaboration between business divisions. In addition, we are using NOVARE to effectively support the deployment of internal and external technologies, and the creation of new businesses.

Skyscrapers

We are responding to the increasingly advanced demands of society by deploying technologies for the safe and high-quality construction of skyscrapers to worksites.

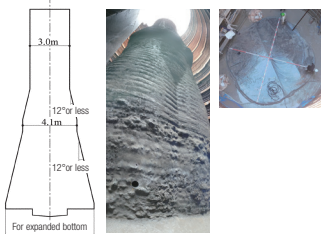


Rendering of TOKYO TORCH Torch Tower (Chiyoda Ward, Tokyo)
Image source: Mitsubishi Jisho Design Inc.

Skyscrapers exceeding 300 m are made from an unimaginable amount of materials. We developed petal-shaped bell piles as a technology for supporting the huge weight of the building on the limited-sized site. These piles also ensure safety against earthquakes. We developed safe, high-quality construction planning technologies for structural verification. These take into account construction conditions that change according to work progress. Further, we developed an advanced lifting system for the efficient conveyance of materials and workers during skyscraper construction.

Petal-shaped Bell Piles for Supporting Weight of Skyscrapers

The petal-shaped bell piles have a bottom surface area up to two times larger than conventional bell piles. This provides greater support power. Also, the bell shape of the piles can be changed to allow construction right up to the boundary of the site. This maximizes the use of urban land. Currently, we are applying this technology to two skyscraper projects consisting of an apartment complex and offices.



Scale of petal-shaped bell pile and verification of experimental pile

Construction Plan Using Advanced Analysis

Recently, clients want skyscrapers to show personality through their height. We have also constructed buildings in recent years with features such as concert halls or theaters on middle or lower floors. We need to respond more and more to such diverse values. To do this, we must understand structural features and conditions that change between each construction phase. We prepare a detailed construction plan by predicting actual behavior in each construction stage based on step analysis for construction.

SEC-5000RS and Lift Monitoring System for Greater Lifting Efficiency

Efficiently moving materials and workers up to the higher floors is the key to raising productivity when building a skyscraper. We developed SEC-5000RS as a worksite elevator with best-in-class lifting speed and loading capacity in Japan. It is also equipped with a sensing function that automatically identifies equipment positions. The elevator has features such as variable speed control that adapts to lifting height and loading conditions, and a remote monitoring function. It greatly contributes to raising the efficiency of logistics within the worksite and to shortening worker movement times. Furthermore, the Lift Monitoring System leverages cutting-edge technologies, such as AI and IoT, to visualize and analyze lifting results data for materials and workers. This information can be applied widely, including for elevator design optimization, technology development, and process simulations.



Example of Lift Monitoring System screens

Technologies Developed for Skyscrapers (from Azabudai Hills (Mori JP Tower) to TOKYO TORCH Torch Tower)

Following the completion of the Azabudai Hills (Mori JP Tower) last year, we are currently continuing construction for several skyscraper projects. One of these is TOKYO TORCH Torch Tower, which will become the tallest building in Japan. We are involved in a wide range of technological developments to enable the building of skyscrapers. These range from basic technologies like steel frames and concrete, to techniques for raising productivity by reforming work styles. We do this to contribute to the future of the construction industry in Japan. It also creates new, better value for our clients by leveraging our developed technologies. We want to use advanced smart technologies to show the appeal of the construction industry to the young people who will make up its next generation.

Yoshito Tsutsumi

Executive Vice President
Executive Project Director,
TOKIYABASHI PROJECT,
In charge of Special Projects



Wood Buildings

We have cultivated techniques and know-how for constructing wood buildings over the more than two centuries of our history. Our knowledge ranges from traditional wooden structures to modern architecture. We will leverage this expertise to build a zero-carbon society, recycle forest resources, and create wellness spaces.

In the context of the global trend toward decarbonization, the demand for wooden structures and wood buildings is growing worldwide. In Japan too, the use of wood in buildings has increased as legislation is introduced to promote the use of wood. In addition to environmental reasons, such laws aim to revitalize regional economies by promoting the use of forest resources. To promote the use of wood in buildings, we are developing technologies to make wooden materials and structures even more resistant to fires and earthquakes. In this way, we are developing wood buildings that are friendly to both people and the environment.



Wooden office space that promotes wellness Nomura Tameikesanno Building (Minato Ward, Tokyo)

Shimizu Hy-wood Series, a Hybrid Wood Technology

Shimizu Hy-wood® is the generic term for hybrid wood technology. Our development goal was to optimize the adoption of wood in buildings by combining wooden structures, steel frame structures, and concrete in right place and at the right time. This efficiently satisfies the high earthquake and fire resistance required for medium- to large-scale buildings, while also providing wood buildings with excellent functionality and design. We are deploying material and joining technologies to meet diverse needs as wood is adopted.

*Shimizu Hy-wood is a registered trademark of Shimizu Corporation in Japan.

Slim Fire-Resistant Wood	Hy-wood Beams	Hy-wood Joints	Hy-wood Walls	Hy-wood Slabs
Fire-resistant wood components columns and beams	Fire-resistant wood and steel beams	Joint for columns and beams	CLT earthquake-resistant walls	CLT composite floors
Wooden structural columns and beams that can be used in fire-resistant buildings. The slim materials increase the openness and effectiveness of space.	This fire-resistant wood and steel beam is made from a steel beam and wood used as a fire-resistant covering and finishing material. Its long span can be used to create a large space.	This joint for columns and beams can be used to efficiently join structures made of wood, steel frame, and concrete. It has excellent earthquake and fire resistance.	CLT* is used in this earthquake-resistance wall. Since CLT does not need any fireproof covering, the wood can be left exposed.	A synthetic floor that combines CLT with concrete slab formwork and decorative materials. The wooden ceiling creates a relaxing space.

*Stands for Cross Laminated Timber

Example of Shimizu Hy-wood Application

This technology was first applied to a four-story apartment complex that was completed in 2020. It was then used successively in low- to medium-rise offices and other projects. 2023 saw the completion of the nine-story Nomura Tameikesanno Building. Next year, the twelve-story Kyobashi Dai-ichi Life Building will be completed. New wooden landscapes are appearing all over Tokyo. Promoting the use of wood in medium- to large-scale projects in cities will stabilize and reduce CO₂ emissions. Furthermore, it will also revitalize regional forestries and lead to forest conservation. Wood buildings using Shimizu Hy-wood have been praised by the wider public. The technology was selected as a Leading Sustainable Business (Wooden Structure Leader) by the Ministry of Land, Infrastructure, Transport and Tourism. It has also received numerous external awards.



Nomura Tameikesanno Building (Minato Ward, Tokyo)
Completed 2023



Kyobashi Dai-ichi Life Building (Chuo Ward, Tokyo)
Due for completion in 2025



Business Topics
Creating New Value through Wood Buildings
<https://www.shimz.co.jp/en/topics/construction/item25/index.html>

DX

We combine digital technologies to provide advanced support for conserving cultural properties, facility control, and design work.

Uniquely in the construction industry, we have been selected as a DX Company (by the Ministry of Economy, Trade and Industry and Tokyo Stock Exchange) for three consecutive years. We use digital technologies in the various stages of design and construction work for digitization, digitalization, and DX. Our initiatives include technologies for the conservation and protection of cultural properties that are highly valued by society. We have also developed technologies for ZEB proposals that will accelerate actions across industry toward achieving a carbon neutral society. We will harness the power of digital technologies to find solutions for an ever-changing society.

Cultural Property Conservation Created Digital Twins of 19 Cultural Properties at Eihei-ji, “The Temple of Eternal Peace”

This project was a collaboration with Daihonzan Eihei-ji of the Soto school of Zen Buddhism. We created precise digital twin data for the 19 Important Cultural Properties at the site using 3D point cloud surveying. Most historical buildings in Japan are made of wood. Many have been destroyed by fire in accidents or war. It is our social responsibility to preserve our historical buildings in their original form for future generations. With this in mind, we used 3D point cloud surveying to capture all spaces and shapes. This was



Point cloud data of main hall (both exterior and interior displayed simultaneously)

Eihei-ji and Shimizu Corporation joint inspection Survey collaboration T&I 3D

done not only on the inside and outside of structures, but also in the attics, under the floors, and across the various sculptures. We then processed and archived the data to allow users to extract and display any plane, elevation, or cross section.

We also held a Digital Temple exhibition together with Eihei-ji that showcased printouts of the digital twin. More than 30,000 visitors learned about our company's history and our efforts to repair and preserve cultural properties.



Exterior of Daihonzan Eihei-ji (Eihei-ji-cho, Fukui)



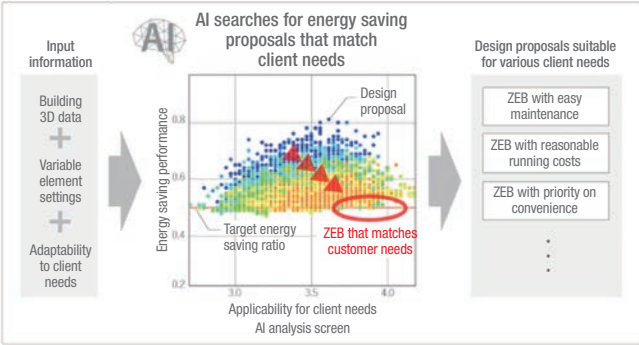
Point cloud data of Sanmon gate (both exterior and interior displayed simultaneously) Eihei-ji and Shimizu Corporation joint inspection Survey collaboration T&I 3D



Jiu system spraying water onto a building

Proposal Support ZEB Design Work Delegated to AI

We have developed an AI tool called ZEB SEEKER, which we will gradually deploy to ZEB (net zero energy building) design work. This will resolve some of the trade-offs that arise from making design work more efficient and advanced. Conventionally, designers have determined the specifications for achieving ZEB through trial and error. But this requires a huge amount of time and work. This AI automatically finds the construction and facility specifications for achieving the target energy saving performance that is set in the system. As a result, ZEB proposals that match client needs can be made from the initial planning stage. This is the crucial time when clients are deciding the direction of their decarbonization policies and business plans.



ZEB SEEKER conceptual diagram

Cultural Property Protection AI Reduces Fire Risk for Traditional Wooden Buildings

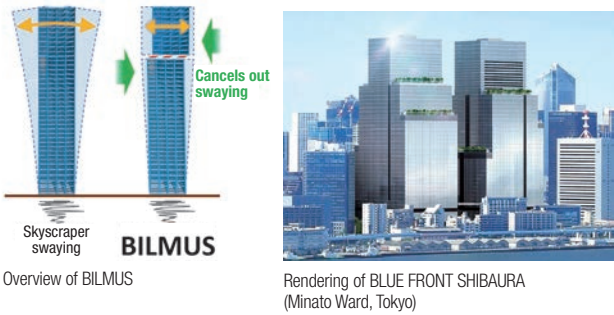
In recent years, fires have broken out at many important traditional buildings that are made of wood. Our “Jiu,” a water-saving, non-destructive water spraying system uses image recognition technology based on AI. The system detects whether fires have started and their positions from the images of monitoring cameras installed outside the building. Furthermore, Jiu selects the most effective spray nozzles for the fire location, and activates the extinguisher system to spray water automatically. The spray pressure is controlled to prevent damage to the building. This reduces the risk of both destruction by fire and damage to the building by water pressure. Technology like this helps prevent the loss of the architectural value of cultural properties due to man-made or accidental fires. Through such initiatives, we aim to contribute even more in the future to maintaining and conserving historical buildings and traditional streets across Japan.

Award-Winning Technologies

This section introduces some of our successful technological developments that have recently won awards.

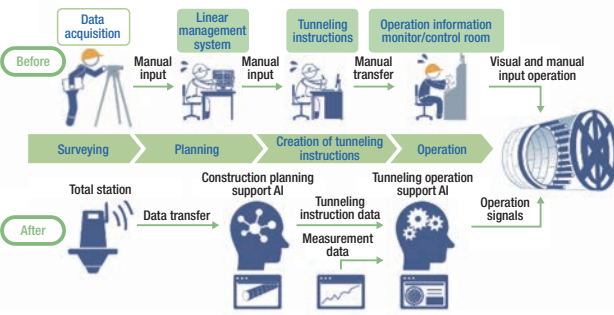
2023 Nikkei Excellent Products and Services Awards: First Prize BILMUS Vibration Control System for Skyscrapers

This prize is awarded once a year by Nikkei Inc. About 200 candidates are recommended by journalists. From these, new products and new services that show particular excellence are selected for commendation. BILMUS was developed mainly as a technology for skyscrapers to withstand earthquakes. It is a pioneering system that makes the building itself act as vibration control mechanism, which restricts swaying through the weight of the building itself. The system provides a large vibration control effect without needing to install vibration control equipment within the building. In particular, swaying on the upper floors is halved. This helps increase the commercial value of residences and hotels planned for the upper floors. BILMUS received an award because it was highly rated as a vibration control technology that resolved some of the past issues inherent in skyscraper buildings. It enables planning with high performance and a high degree of freedom.



Japan Society of Civil Engineers Technological Development Award Development of AI-based Autonomous Shield Operation System

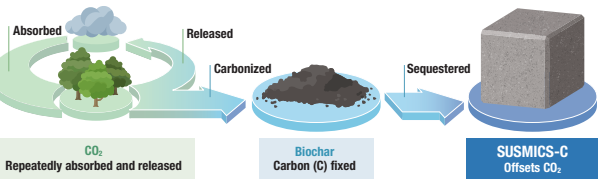
This technology enables automatic excavation for shield tunneling. It is based on planning support AI that creates a tunneling plan for the shield tunnel, and operation support AI that operates the jacks of the shield machine. Currently, the creation of the tunneling instructions used during shield tunneling and the operation of the shield machines require many years of experience and a great deal of effort. AI allows the rapid creation of tunneling plans that take into account the relative positions of the shield machine and segments. This leads to precise operations during excavation that avoids overlooking any signs of meandering. Not only does this ensure the quality of the shield tunnel, but it also compensates for expected future shortages of expert operators. Furthermore, it reduces instruction creation workloads, improving productivity.



Productivity of shield construction improved by AI

Nikkan Kogyo Shimbun, Ltd. TOP 10 New Products Award: Main Prize SUSMICS-C Environmentally Friendly Concrete

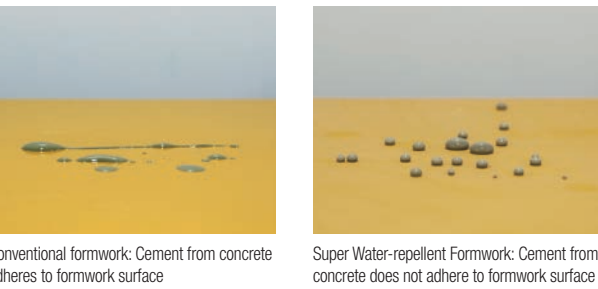
These awards are given by Nikkan Kogyo Shimbun, Ltd. to commend products useful for manufacturing development and strengthening Japan's international competitiveness. This was the first time for Shimizu to receive this award. SUSMICS-C (biochar concrete) is a technology that sequesters carbon inside concrete buildings. Wood biomass (such as sawdust) is carbonized to form biochar, which is used as an admixture in the concrete. This concrete is just as strong as regular concrete, and it can be manufactured at existing concrete factories. SUSMICS-C also has fluidity suitable for pumping. As such, it can be used for cast-in-place construction where concrete is poured and hardened at the worksite. The sequestered biochar CO₂ offsets the CO₂ emissions from other materials, achieving carbon negativity. This benefit was highly praised and led to us winning the award.



Using biochar for CO₂ fixation

Architectural Institute of Japan Award (Technology) Super Water-repellent Formwork Using Biomimetic Technology

We call this technology Art Formwork, a registered trademark in Japan. We applied Toyo Aluminium K.K.'s biometric technology, which mimics the water repelling surface mechanism of lotus leaves, to the surface of formwork. This significantly reduces the air bubble marks and uneven coloring that impairs the appearance of concrete. The result is a building of beautiful, high-quality concrete. Furthermore, the formwork's detachability is extremely high. This helps increase work productivity when removing the formwork from concrete. This formwork can also be used more times, which reduces environmental burdens and reduces costs. Super Water-repellent Formwork is an innovative and pioneering technology that delivers excellent benefits that were not possible with conventional formwork that prioritized processing performance and durability. We were praised for being the first in the world to make practical use of this technology.



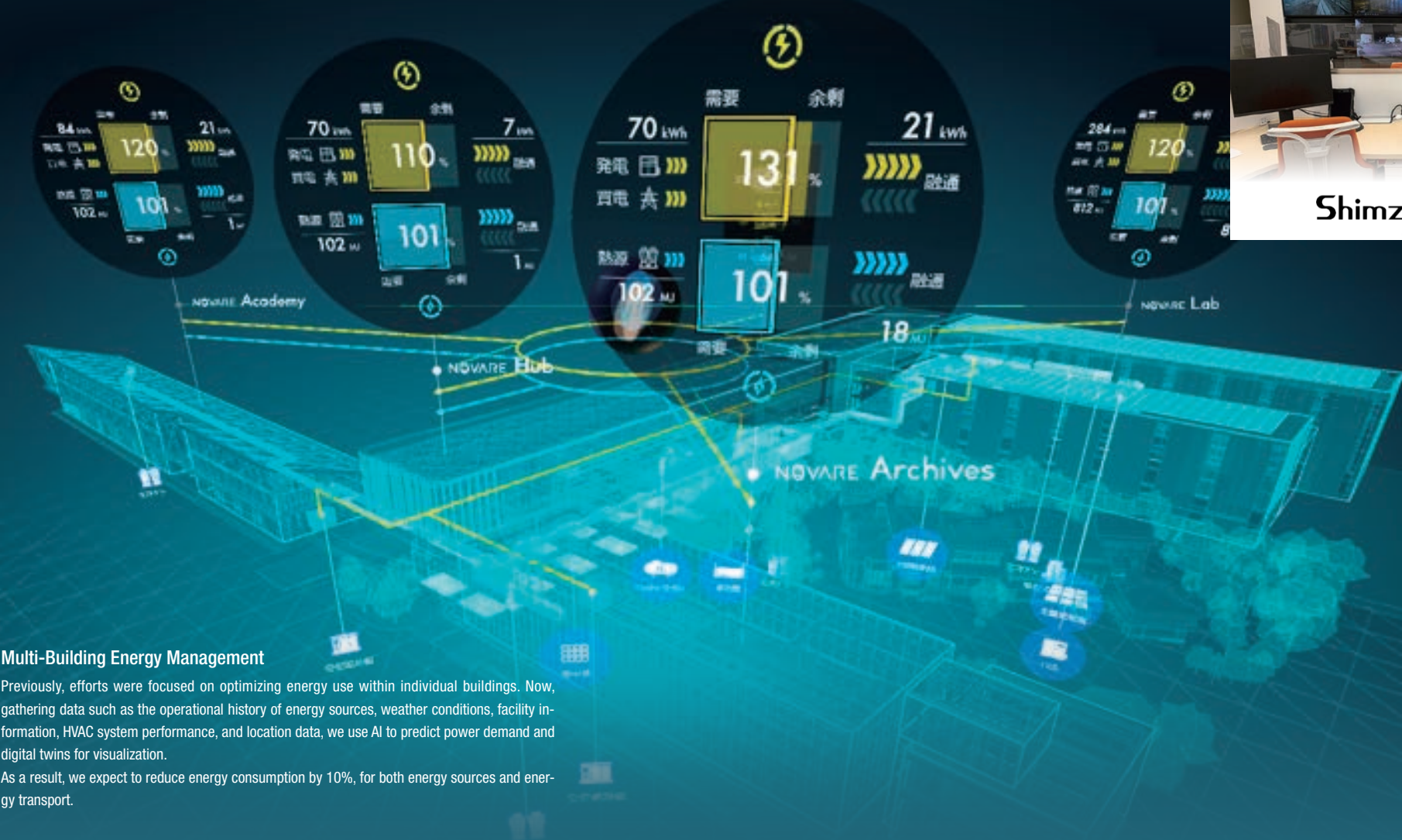
Conventional formwork: Cement from concrete adheres to formwork surface

Super Water-repellent Formwork: Cement from concrete does not adhere to formwork surface

Special Content 2: Digital Strategy

Overview of Our Mid-Term Digital Strategy

In July 2021, we formulated our Mid-Term Digital Strategy 2020 (2019-2023), titled “Shimz Digital General Contractor.” Our goal is to become a construction company that provides real and digital spaces and services through digital monozukuri, leveraging both real monozukuri expertise and cutting-edge digital technology. As a result, over the past five years, we have made significant progress in introducing digital technology for digital environments that support flexible work styles within the Company and to enhance productivity at construction sites and within internal departments. The digitalization of operations has advanced rapidly.



Multi-Building Energy Management

Previously, efforts were focused on optimizing energy use within individual buildings. Now, gathering data such as the operational history of energy sources, weather conditions, facility information, HVAC system performance, and location data, we use AI to predict power demand and digital twins for visualization. As a result, we expect to reduce energy consumption by 10%, for both energy sources and energy transport.

Future Outlook

To become a Smart Innovation Company, we are committed to thoroughly understanding the core needs of our clients and society by embracing a “Choukensetsu” mindset and digital technology. We aim to drive and integrate innovations across business structures (processes, models, and services), technologies, talent, and organizations, going beyond existing businesses and organizational frameworks. Furthermore, we will develop and promote a new DX strategy aligned with the concept of a Digital General Contractor.



Takeshi Sekiguchi
Executive Vice President and Director
Executive Vice President and Executive Officer
In charge of Information Management

Digital Technology for Construction

Streamlining Construction Business Operations

Shimz XXR Vision

A next-generation civil engineering, construction and production system that digitally integrates pre-construction planning in cyberspace with real-world site construction, allowing people and robots to collaborate on monozukuri. We are working on site management for the new era, focusing on how people work and leveraging real-time imagery from site cameras.



Digital Spaces and Services

Creating New Services with the Latest Digital Technology

Digi-Tori 360

A digital instruction manual that links image data of various building components captured with a 360° camera to the corresponding instruction manuals for architectural, equipment, and electrical functions and the relevant blueprint data. Helps enhance satisfaction and convenience for all building stakeholders, from clients to end users.



Shimz Digital General Contractor

A digital general contractor with the mindset of *monozukuri*

Digital Technology
for Construction

Digital Spaces and
Services Provision



Digital Support for
All Operations

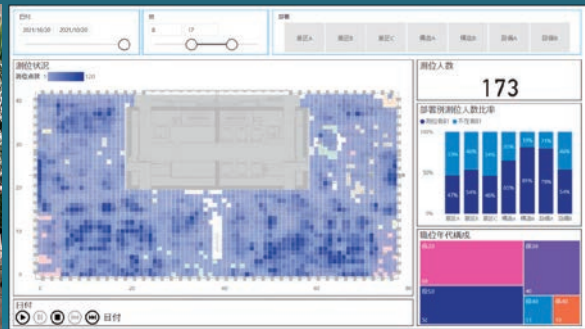
Other initiatives in the Medium-Term
Digital Strategy 2020



Shimizu's DX (Japanese only)
<https://www.shimizu.co.jp/digital-strategy/2020/>

Digital Support for Monozukuri

Realizing New Work Styles



Location Information System

By leveraging heat map analysis, which utilizes location data (for example, to display cumulative numbers of people in various shades), we aim to create a connected workplace (work field) that enables new work styles, free from time and location constraints. Our goal is to transition to an autonomous organization, create job satisfaction, and enable real-time, dialogue-centered operations.

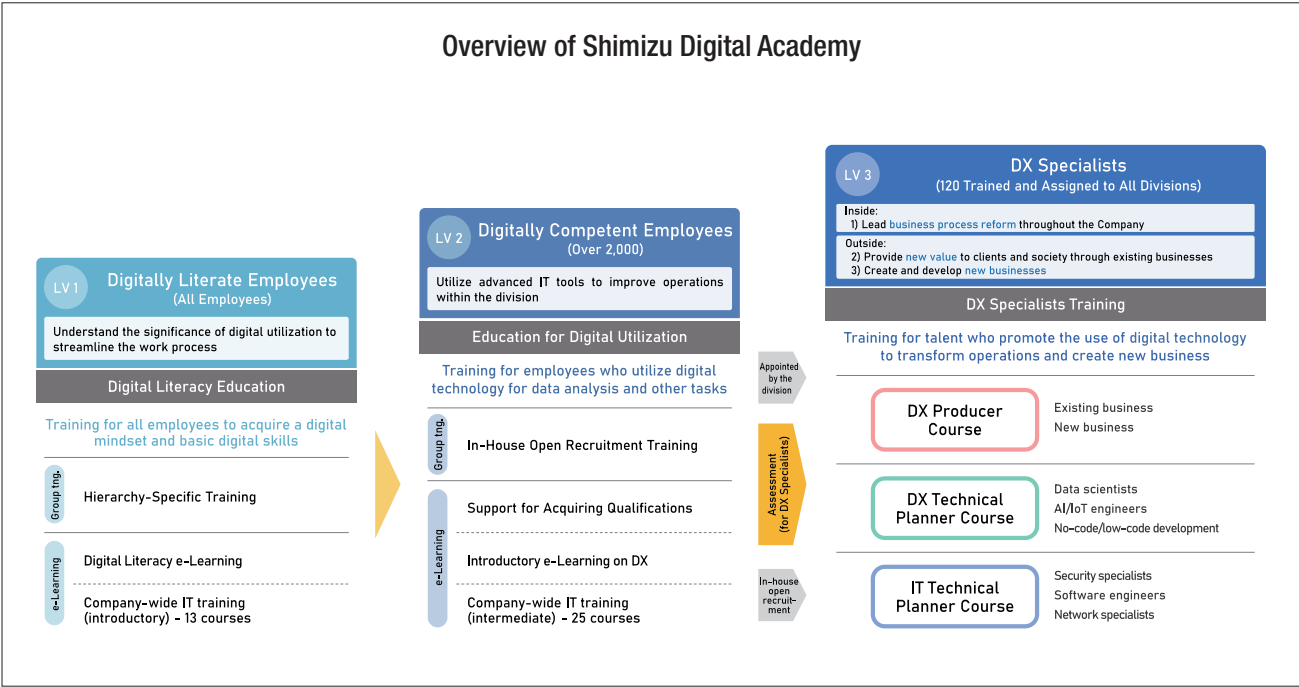
Special Content 2: Digital Strategy

Initiatives to Realize the New Digital Strategy

Digital Training Program “Shimizu Digital Academy”

Nurturing DX talent in the digital field in three steps

We launched the Shimizu Digital Academy, a digital training program, in FY2024. It focuses on enhancing employees' digital literacy and nurturing DX Specialists who will drive business transformation and the creation of new businesses through data and digital technology. As for DX Specialists, we plan to train 120 people by FY2026 and assign them to each department.



Implementing DX Training for New Employees

As a leading initiative to nurture DX specialists, we conducted DX training for new employees in FY2023 from April 2023 to March 2024. A total of 27 applicants were selected from building construction, design, and construction technology to equipment installation, civil engineering, engineering, research, and the humanities. The training was focused on group education.



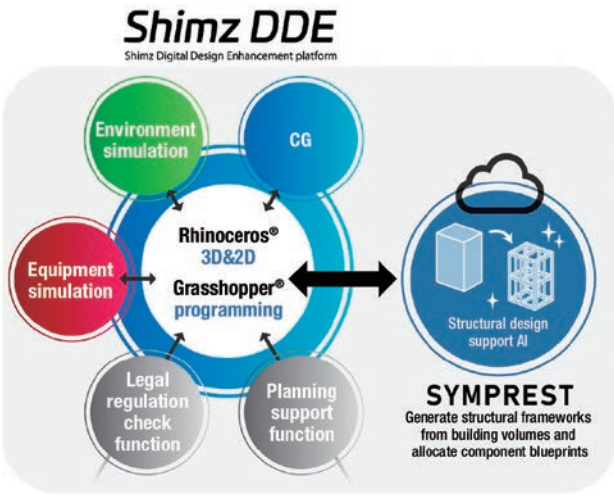
Promoting the Use of AI

Making Generative AI Available to All Employees

The release of ChatGPT in November 2022 marked the start of the generative AI boom around the world. In November 2023, we, too, began providing a generative AI service for all employees (by application). It is effective for accelerating and improving information gathering and research, generating creative ideas and high-quality text, enhancing and improving the efficiency of programming work, and facilitating communication and information sharing across language barriers. While, if used incorrectly, it can lead to security incidents such as confidential information leaks. Therefore, we have made it mandatory for users to take e-learning courses on the correct use of the generative AI.

Application of the Latest AI Technologies to Operations

We utilize the latest AI technologies, including generative AI, across a range of business operations. The diagram on the right illustrates an example of how AI can assist in structural design work during the early stages, leading to operational enhancement and labor savings. We are developing and producing in-house systems that leverage the latest AI technologies to enhance various specialized operations and increase their efficiency.



Positioning of SYMPREST within Shimz DDE

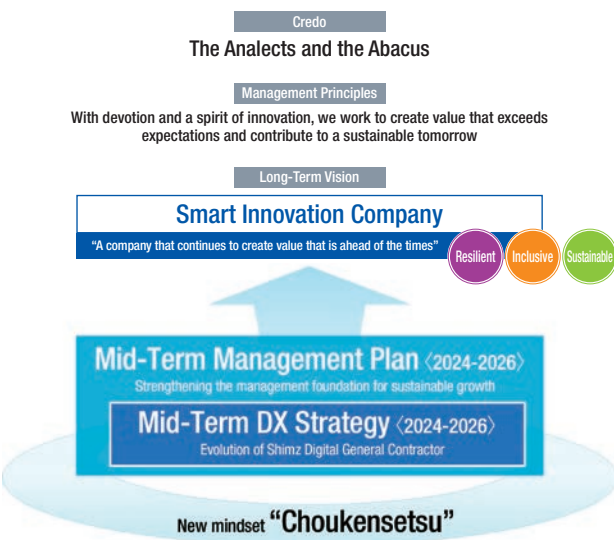
As part of our digital design strategy, we have developed an AI called “SYMPREST” to support structural review work for steel-frame construction in the early stages of design. We have also made it into a web application on the cloud and launched internal operations.

TOPICS

Mid-Term DX Strategy (2024-2026)

Advancement of Digital General Contractor Program through Choukensetsu

As a continuation of our digital strategy that was in place through the previous fiscal year, we have formulated the Mid-term DX Strategy (2024-2026), titled “Advancement of Digital General Contractor Program through Choukensetsu” based on the concept of “Shimz Digital General Contractor 2.0.” This strategy, integrated with the Mid-Term Business Plan (2024-2026), aims to transform the company into one that can generate forward-thinking value through the mindset of “Choukensetsu” and digital technology.



Special Content 3: Initiatives for Carbon Neutrality

Initiatives for Renewable Energy

Amidst the growing momentum towards achieving a zero-carbon society, we are committed to providing renewable energy and new value to our clients in various ways. We are accomplishing this through the construction of offshore wind farms using the self-propelled SEP vessel, BLUE WIND, and onshore wind farms utilizing the S-Movable Towercrane. We will continue our efforts for the realization of a zero-carbon society.

Offshore Wind Farms (SEP Vessel*)

Our self-propelled SEP vessel, BLUE WIND, boasts the world's largest class loading and crane capacity, enabling it to handle the construction of ultra-large offshore wind turbines. It allows us to engage in highly efficient construction with short construction periods. We completed four construction projects in fiscal 2023. We are promoting carbon neutrality initiatives with BLUE WIND.

* Stands for Self-Elevating Platform.

Fiscal 2023 Projects



Ishikari Bay New Port Offshore Wind Farm Construction Project
Scale: 112 MW (8 MW x 14 turbines)



Nyuzen-machi Offshore Wind Farm Construction Project
Scale: 9 MW (3 MW x 3 turbines)



Yunlin Offshore Wind Farm Construction Project (Chartered)
Greater Changhua Offshore Wind Farm Construction Project (Chartered)

Onshore Wind Farms (Movable Tower Crane)

We have developed the S-Movable Towercrane, a movable tower crane designed to handle increasingly larger onshore wind turbines as demand for renewable energy continues to rise. This movable tower crane was designed for constructing onshore wind turbines, which stands independently on a cross-shaped base. For transportation, the base's legs can be removed, allowing the crane to be loaded onto a self-propelled multi-axle dolly. The fact that it can be dismantled and moved to the next construction yard in a short period of time gives it significant advantages in terms of construction period and costs. We are promoting carbon neutrality initiatives with S-Movable Towercrane.

Special Content 3: Initiatives for Carbon Neutrality

Using Hydrogen Energy

The Hydro Q-BiC is hydrogen energy utilization system for buildings that converts surplus renewable energy into hydrogen, stores it in a hydrogen storage alloy, and extracts it as needed to generate power. Focusing on urban planning and use, we are initially introducing this technology to buildings.

Susumu CO., LTD. Obama Plant

In addition to converting the produced hydrogen into electricity for the office area, it is also utilized as a process gas for manufacturing electronic components. Moreover, the cooling water from the hydrogen storage equipment is reused to produce pure water.



Susumu Obama Plant (Obama City, Fukui)

Tokyo Waterfront City Green Hydrogen Utilization Project

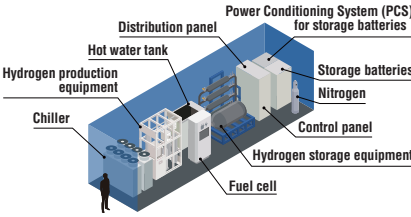
We will provide green hydrogen for a hydrogen co-firing boiler at a regional heat supply plant and provide electric power for lighting using green hydrogen and solar power generation.



Tokyo Teleport Center (Koto Ward, Tokyo)

EXPO 2025 NTT Pavilion

The Hydro Q-BiC Lite is a space-saving container that houses all the necessary equipment for the hydrogen supply chain, from production to consumption. The hydrogen produced and stored will be supplied from the NTT Pavilion to the Panasonic Group Pavilion.



Hydro Q-BiC Lite (package type)

ZEB Initiatives

Environmentally Friendly Retail Facility Making Use of the Rich Natural Environment of the Region



AEON Mall Toyokawa (Toyokawa City, Aichi)

At AEON Mall Toyokawa, various environmental technologies have been introduced to achieve a 54% reduction in primary energy consumption, making it the first large-scale retail facility in Japan to receive ZEB Ready certification. This facility was designed with the environment in mind, combining energy-saving and energy-generating technologies, such as utilizing daylight through high side windows strategically positioned using 3D simulations and a natural ventilation system that takes advantage of the building's form. Together with the emergency generator and solar power generation, it is able to provide a continuous power supply in the event of a disaster. It also plays a role as a regional disaster prevention base. AEON Mall Toyokawa (Toyokawa City, Aichi) received the Minister of the Environment Award for the Creation of a Zero Carbon City.

Retail Electricity Business



NITTO KOGYO Seto Plant (Seto City, Aichi)

We deliver CO₂-free green electricity to our clients through our wholly-owned subsidiary, Smart Eco Energy Co., Ltd (SEE.), which is engaged in the electric power retail business based on renewable energy. Combining our own power generation facilities with non-fossil and green power certificates, which we procure from external renewable energy sources, we carefully address our clients' environmental needs. At NITTO KOGYO CORPORATION, the green electricity generated by the solar power system installed on the roof and grounds of the Seto Plant is used for in-house consumption and also supplied to the Nakatsugawa Plant, located in a remote area. Through SEE., we ensure a stable, long-term supply of green electricity, including supplementing any shortfall from solar power generation.

Sale of Renewable Energy Certificates

A renewable energy certificate certifies the environmental value contained in electricity generated from renewable energy, allowing it to be traded on the market.



Comments from an Outside Director

While companies must strive for carbon neutrality as part of their social responsibility, this also presents an opportunity for business expansion. In the construction industry, there are two key aspects to consider: implementing measures within the core construction business and leveraging the global shift towards energy transition to explore new related ventures outside of the core business. In both scenarios, I believe the key word is "hydrogen." Shimizu commercialized the Hydro Q-BiC, a hydrogen energy utilization system for buildings, developed in collaboration with the National Institute of Advanced Industrial Science and Technology. Additionally, the Company is consolidating its previously dispersed hydrogen-related technologies at the Smart Innovation Ecosystem NOVARE. I believe that the key to future business success will be how effectively it can visualize and present these technologies. To further expand the potential of hydrogen, it is crucial not only to advance development as a single company but also to promote joint development and dissemination through industry-government-academia collaboration. It is important to differentiate between areas where the Company can compete with its unique technology and those where it can grow its business by collaborating with other companies.



Junichi Kawada
Director