

TAKENAKA Corporate Report 2018



We will inform all of our stakeholders through our report and website about the operations and initiatives that the Takenaka Group is pursuing with the aim of realizing a sustainable society.

■ Editorial policy

We have compiled this Takenaka Corporate Report 2018 for the purpose of presenting the Takenaka Group CSR Vision and describing the projects undertaken by our corporate group as a whole with maximum clarity. Its contents primarily comprise details related to activities conducted by Takenaka Corporation. Contents, case examples and data that cannot be covered in the report due to space constraints will be featured on the Takenaka Corporation website. This report integrates our corporate brochure (introductory overview of our businesses) and sustainability report (CSR activity report), which were formerly issued as separate publications. It also seeks to obtain the full understanding of our stakeholders by incorporating our medium-term management plan as well as our principal financial and nonfinancial data in order to present the business operations implemented by our group on a global scale.



Corporate Website
(Japanese/English)
www.takenaka.co.jp

- Major Works
- Solutions
- Corporate Information
- CSR Activities

Corporate Publications (Japanese/English)

Corporate Report
(Japanese/English)

Major Works Report
(Parallel Japanese/English)

Financial Report
(English)

Financial and nonfinancial information concerning the company is presented in an integrated, compact format. Its business operations and results (works) are introduced in greater detail.
*Separate technology and solutions publications are also available.

The report provides detailed coverage of financial and nonfinancial information across a wide range.

■ Period of coverage

January–December 2017. Some contents concern activities conducted outside this period.

■ Scope of coverage

The contents include the activities of the Takenaka Group centered on the activities of Takenaka Corporation.

■ Reference guidelines

Environmental Reporting Guidelines, 2012 the Ministry of the Environment, and the Japan Standards Association's draft translation, ISO26000 (Guidance on Social Responsibility), 1st edition, November 1, 2010, were employed as references in compiling this report.

■ Date of issue

April 2018 (next issue April 2019). We have also published the report on our website to make it available to larger numbers of readers.

■ Inquiries

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Financial and Nonfinancial Highlights



Seeking realization of a sustainable society

Since the founding of our business, we have consistently provided architectural structures that respond to the expectations of our customers based on our management philosophy, “Contribute to society by passing on the best works to future generations.”

The role that corporations are called on to play in society changes with the times. Today they are being asked to contribute to solving large numbers of problems confronting our world on a global scale, including such issues as climate change and overpopulation. We wish to maintain a sensitivity to change at all times. To this end, we will continue our ongoing dialog with people everywhere and our diligent efforts to improve our technologies with the aim of providing optimal solutions to the needs of the era. By leveraging the strengths of our whole corporate group, we will contribute to urban creation by building cities and towns where people can live in safety and security, and to achieving a sustainable society with the aim of establishing a path to a better future for the earth.

Chairman
April 2018



“Urban Creation” with prosperity and peace of mind

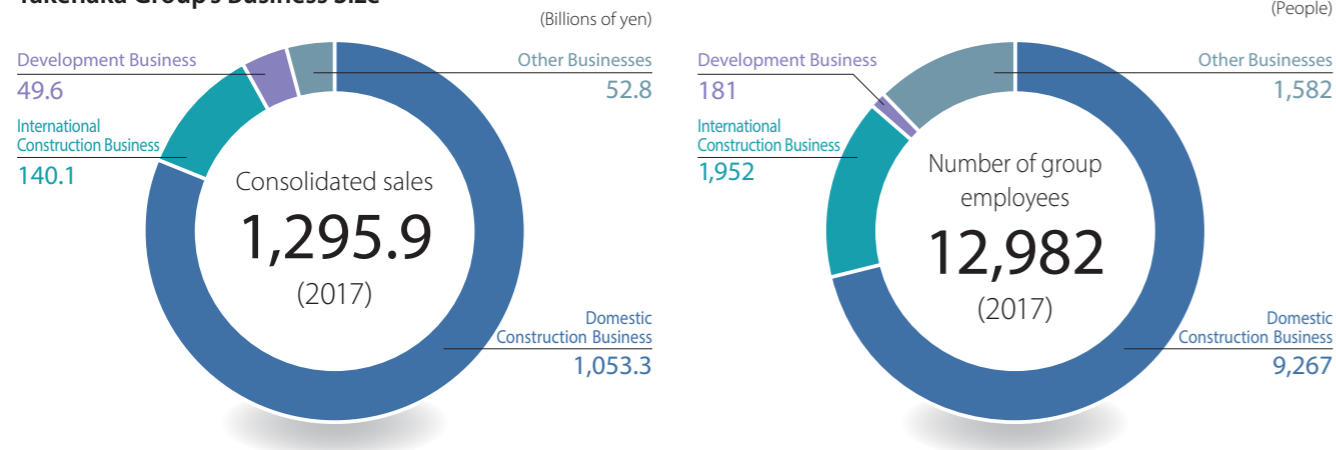
Architectural firms such as ours are required to meet constantly changing challenges. These include preparing against natural disasters, dealing with limits imposed on us by environmental and energy issues, developing more stable and abundant national lands, fostering regional revitalization, and constructing cities and infrastructure around the world. Meanwhile, cities and buildings are expected to fulfill increasingly sophisticated and diversified functions in today’s era of changing lifestyles and corporate activities, where companies are increasingly globalizing their operations and ICT is developing in dramatic ways, as demonstrated by AI and big data.

As a company engaged in the construction industry, we believe that it is our responsibility to properly meet the needs of modern society, and to continue to satisfy continual expectations for safety and security in an honest and reliable manner. Based on our corporate philosophy, the cornerstone of our business, we will continue to pursue “Takenaka Quality Management (TQM),” and we are committed to promoting activities that contribute to a sustainable society through “urban creation” with prosperity and peace of mind, thereby continuing to enable people to lead happy, fulfilling lives.

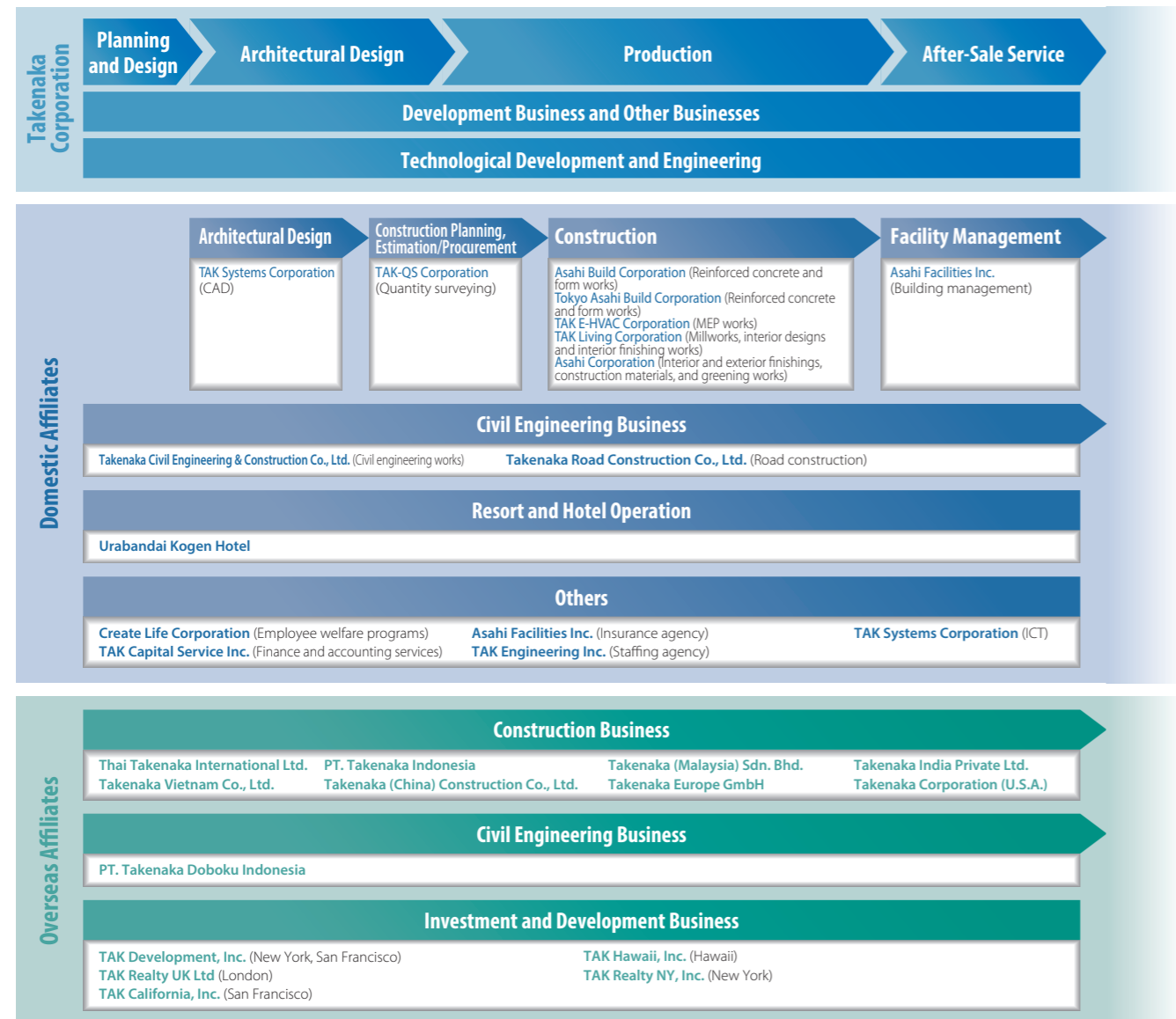
President
April 2018

Working as a group to satisfy customer expectations in every stage of urban creation

Takenaka Group's Business Size



Principle Operations of Main Affiliates



Takenaka Corporation Corporate Data

Company Name	Takenaka Corporation
Head Office	1-13, 4-chome, Hommachi, Chuo-ku, Osaka, Japan
Capital	¥50 billion (as of March 31, 2018)
Construction Licenses	Ministry of Land, Infrastructure and Transport Construction License (Special-26, General-26) No. 2744
Number of Employees	7,400 (as of January 1, 2018)
Affiliates	49 subsidiaries, 15 affiliates, and 1 related company
License Holders	Licensed first class architects2,483 Licensed first class building works execution managers.....2,319 Licensed professional engineers188 Ph.D.s.....119 (as of January 1, 2018)

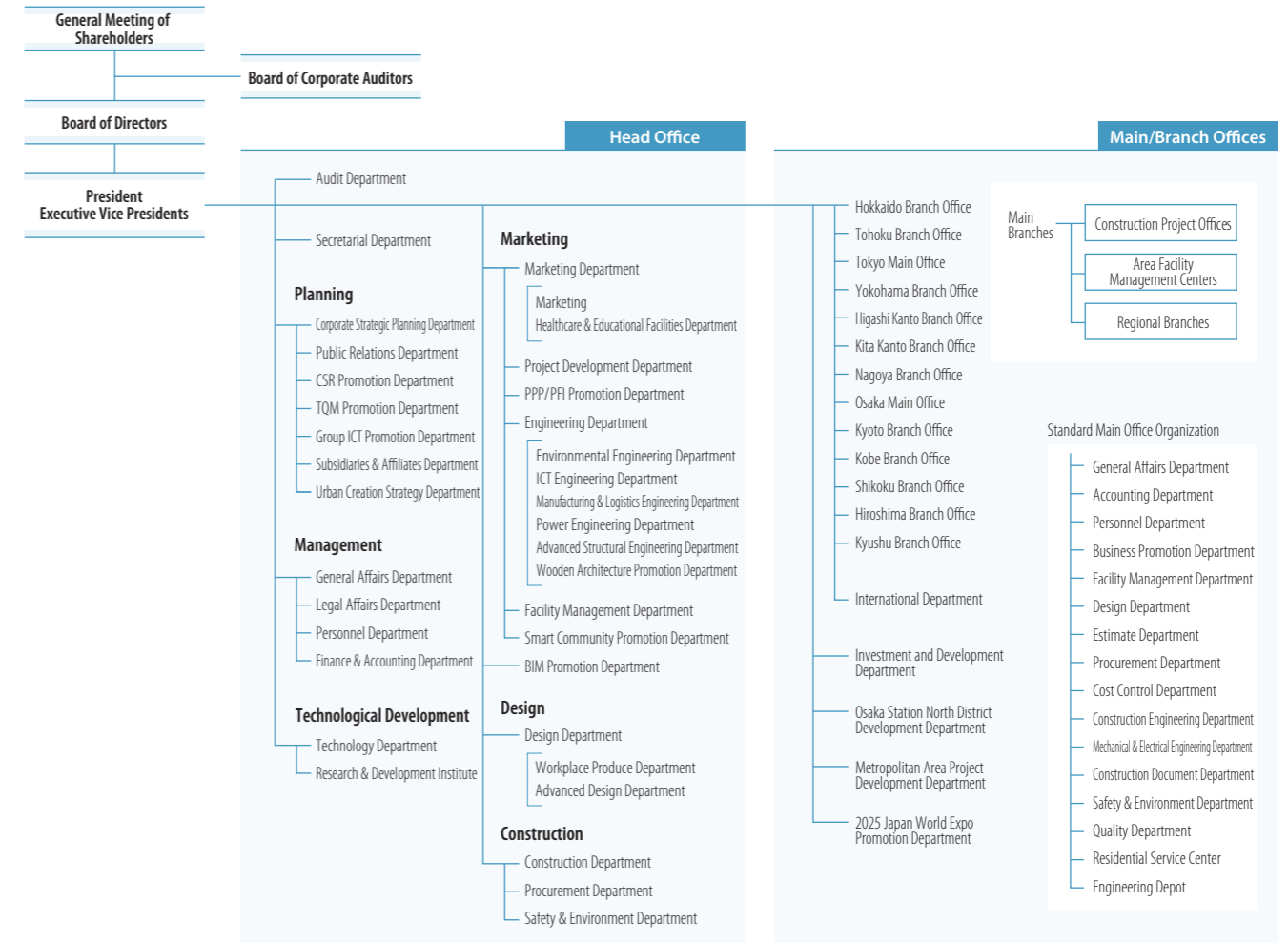
Main Businesses

1. Undertaking, design, and supervision of architectural and civil engineering works
2. Studies, research, surveys, planning, evaluation, diagnosis, and other engineering and management services for construction, regional and urban development, ocean development, space development, energy supply, environmental preservation, and other projects
3. Land preparation and housing construction
4. Sales and purchasing, leasing, brokerage, maintenance, management, and appraisal of real estate as well as real estate investment management

Main Banks

MUFG Bank, Ltd.
Sumitomo Mitsui Banking Corporation
Mizuho Bank, Ltd.
Resona Bank, Ltd.
Mitsubishi UFJ Trust and Banking Corporation
Sumitomo Mitsui Trust Bank, Ltd., others

Corporate Organization (as of April 1, 2018)



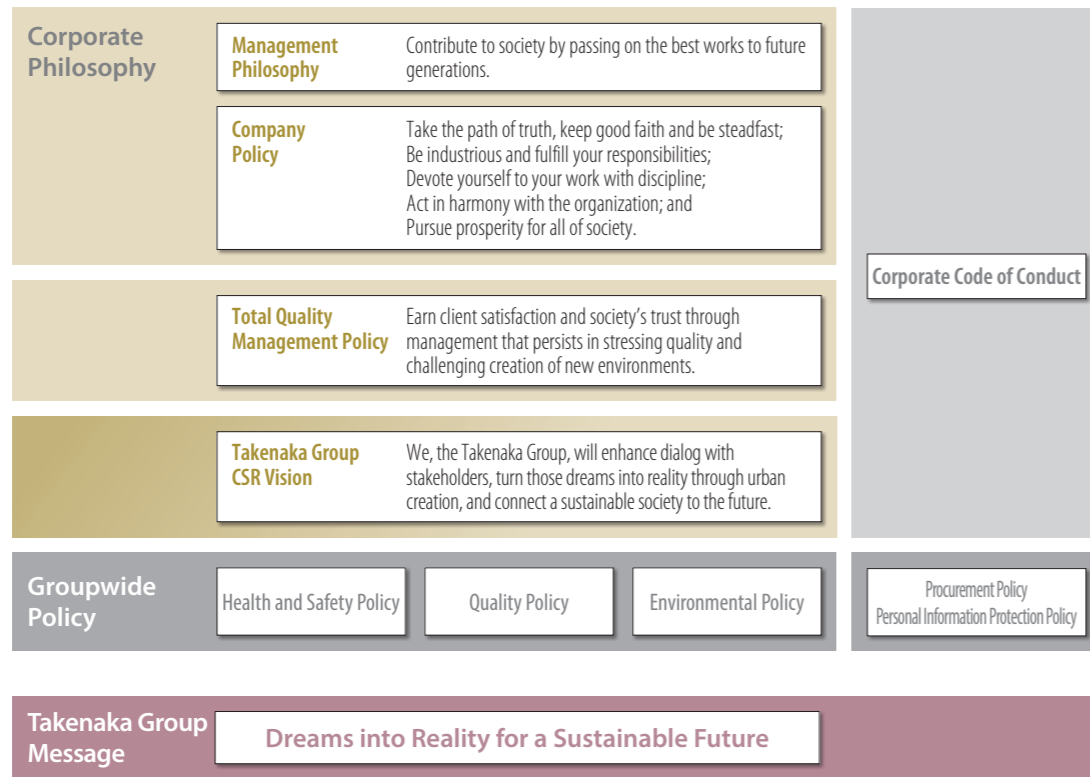
Dreams into Reality for a Sustainable Future

We consider our management philosophy, "Contribute to society by passing on the best works to future generations," as our corporate mission.

To achieve it we follow our company policy and handle every architectural project we undertake with the utmost care. This ensures quality management, which earns customer satisfaction and society's trust, and raises the company's value to society. We are required to engage in many more activities that share our corporate values with society than ever before as our stakeholders diversify and the functions of architecture change. Moreover, society faces various problems, such as energy and environmental issues, increased disaster risk, an aging social infrastructure, and a declining birthrate and aging population.

The potential impact of these issues requires today's corporations to shoulder more social responsibility.

We formulated the Takenaka Group CSR Vision and the Takenaka Group Message, which incorporate this vision in communicating our corporate philosophy based on a concept of quality management, to express our commitment to deploying our group's concerted efforts and cooperating more closely with stakeholders and society to resolve social issues and realize a sustainable society. Each of us will take our corporate philosophy, the cornerstone of our business, to heart and promote quality management in accordance with the CSR action guidelines presented in our corporate code of conduct in order to realize this vision.



Realizing the combined aspirations of the Takenaka Group CSR Vision and Takenaka Group Message

Besides responding to the expectations of our stakeholders, who include the global environment, local communities, customers, employees and cooperating companies in our efforts to realize a sustainable society, we believe that the cities in which they all gather and pursue their various activities must be safe, prosperous and easy to live in both today and tomorrow. To assure this, we will enhance our dialog with stakeholders even further. We will combine the business capabilities of our corporate group in construction, civil engineering, real estate and development, facility management and urban renewal in order to realize a sustainable society of the future through urban creation with new added value.

Activities to achieve our business vision

In response to the expectation of our stakeholders, we are working in various fields to define issues through dialog with stakeholders and with careful attention to global developments, including SDGs, and our management is planning and executing these activities in ways that are in line with our corporate code of conduct.

Our aim is to contribute to building a sustainable society by steadily promoting these activities and resolving challenging social issues.



Takenaka, the Past

Since its founding in 1610, as an architectural specialist, Takenaka Corporation has been responsible for many buildings that have become landmarks, thus playing a vital role in the development of our society. Architecture creates vessels to protect life and property that are, at the same time, social assets. They carry the culture of their times and pass it on to future generations. The pride inherent in such work permits us to refer to the buildings we are involved with as "works." We have participated in major projects that deeply affect Japan's society, economy, and culture, and we have delivered a great number of these works and the associated engineering and technological developments to the world. Our philosophy of always placing our customers' dreams first and of maintaining a high technological level as an architectural specialist lives on from the days of our founder Tobei-Masataka Takenaka, who was a master builder of shrines and temples. This takes the form of a variety of "works," not only in Japan, but all over the world.

1610

1610

Tobei-Masataka Takenaka establishes a business in Nagoya to engage in shrine and temple construction.



1874

Nagoya Garrison barracks featuring Western-style architecture adapted to the postrestoration era completed.

1884

Mitsui Bank Nagoya branch completed.

1897

Mitsui Spinning Mill completed in Nagoya.

1899

14th-generation head of family Touemon Takenaka made his way to Kobe, which marked the first year of the company's foundation.

1900

Mitsui Bank Warehouse completed in Onohama district of Kobe.



1901

1909

Unlimited Partnership Takenaka Komuten established with headquarters in Kobe and a branch in Nagoya.

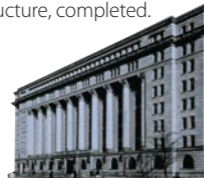
1912

Takashimaya Kyoto Store completed as Japan's first retail store building.



1916

Osaka Mainichi Shimbun Head Office Building, a steel reinforced concrete structure, completed.



1934

Meiji Seimeikan (Marunouchi, Tokyo) completed.

1937

Takenaka Corporation established. Capital ¥1,500,000.



1961

1973

Takenaka Europe GmbH established, expanding business into Europe.

1974

Thai Takenaka International Ltd., PT. Takenaka Indonesia, and **Takenaka Corporation Singapore Office** established, expanding business into Southeast Asia.



1978 West Germany

Deutsch-Japanisches Center completed.

1963

Takenaka awarded first prize in **National Theatre Design Competition**.



1969

Asahi Facilities, Inc. established, expanding our building management and insurance businesses.

1979

Takenaka awarded Deming Application Prize. **Ashiyahama Seaside Town**, proposed by the ASTM Group, of which Takenaka was a member, completed.



1981

1981 Singapore

Changi International Airport Terminal 1 completed.



1990

Takenaka (Malaysia) Sdn. Bhd. established.

1983 Tokyo

Ote Center Building completed and opened.



1987 San Francisco

Hotel Nikko San Francisco completed and opened.

1990 Osaka

Crystal Tower completed and opened.

1986

Takenaka awarded Best Design Prize in **New National Theatre**, Tokyo International Design Competition.

1987

Yurakucho Marion completed.



1988

Chairman Renichi Takenaka awarded the Deming Prize.

Tokyo Dome, Japan's first all-purpose stadium with an air-supported membrane structure, completed.



1991

1993

PT. Takenaka Doboku Indonesia established.



1996 Thailand

Bank of Ayudhya Head Office Building completed.

1991 Hawaii

Grand Hyatt Kauai Resort and Spa completed and opened.



1992

Takenaka awarded the Japan Quality Award.

1993

FUKUOKA YAHUOKU! DOME, Japan's first multipurpose stadium with a retractable roof, completed.



1997

Nagoya Dome completed.

2001

2001

Takenaka Corporation (U.S.A.) established.

2003

Takenaka (China) Construction Co., Ltd. established.

2003 Germany

Hyundai Motor Europe R&D Center completed.



2010

Takenaka India Private Ltd. established.

2001

Oita Sports Park Oita Bank Dome and Sapporo Dome completed.

2006

World's tallest superhigh-rise base-isolation condominium **City Tower Nishi-Umeda** completed.

2007

Chubu region's tallest skyscraper **Midland Square** completed.

Large-scale integrated **Tokyo Midtown** and **Shin-Marunouchi Building** completed in central Tokyo.



2008

World's first high-rise condominium comprising three interconnected skyscrapers, **Island Tower Sky Club**, completed.

2009

Mitsubishi Ichigokan and **Marunouchi Park Building** completed.



2011

International Operations → P25

2015 Singapore

CapitaGreen awarded the CTBUH 2015 Best Tall Building Award for the Asia & Australia Region.

2017

Takenaka Vietnam Co., Ltd. established.

2017 Singapore

Changi International Airport Terminal 4 completed, to handle the flow of people and economic activities as Southeast Asia's hub airport.



Development → P27

Architecture → P21

2013

ABENO HARUKAS completed, the tallest building in Japan in a high-density urban environment.

Grand Front Osaka completed and opened as a large-scale "city" connected directly to the railway station.

2014

Takenaka awarded Architectural Institute of Japan Award (Architectural Design) for **Meiji Yasuda Life Insurance New Toyocho Building**.



2016

Hirakata T-Site completed, designed to bring dynamic activity to the area adjoining a railway station, enabling local citizens to use their own initiative to create new value.



2017

Global Gate complex opened to serve as the core of Sasashima Live 24, the redevelopment project targeted as an international center for exchange and interaction with foreign visitors.



Takenaka, the Future

As we provide services and solutions that the times demand while still adhering to the spirit of the master builder, our works principle, and a consistent method of design-build, the "works" we are involved with transcend the boundaries of architecture and extend into urban creation. We will continue to live up to the trust society has placed in us and contribute to bountiful "urban creation" by pursuing the best for everyone from a long-term perspective.

We seek to provide the best solutions for our customers' business activities in order to contribute to the realization of a sustainable society through the concerted efforts of our entire group.



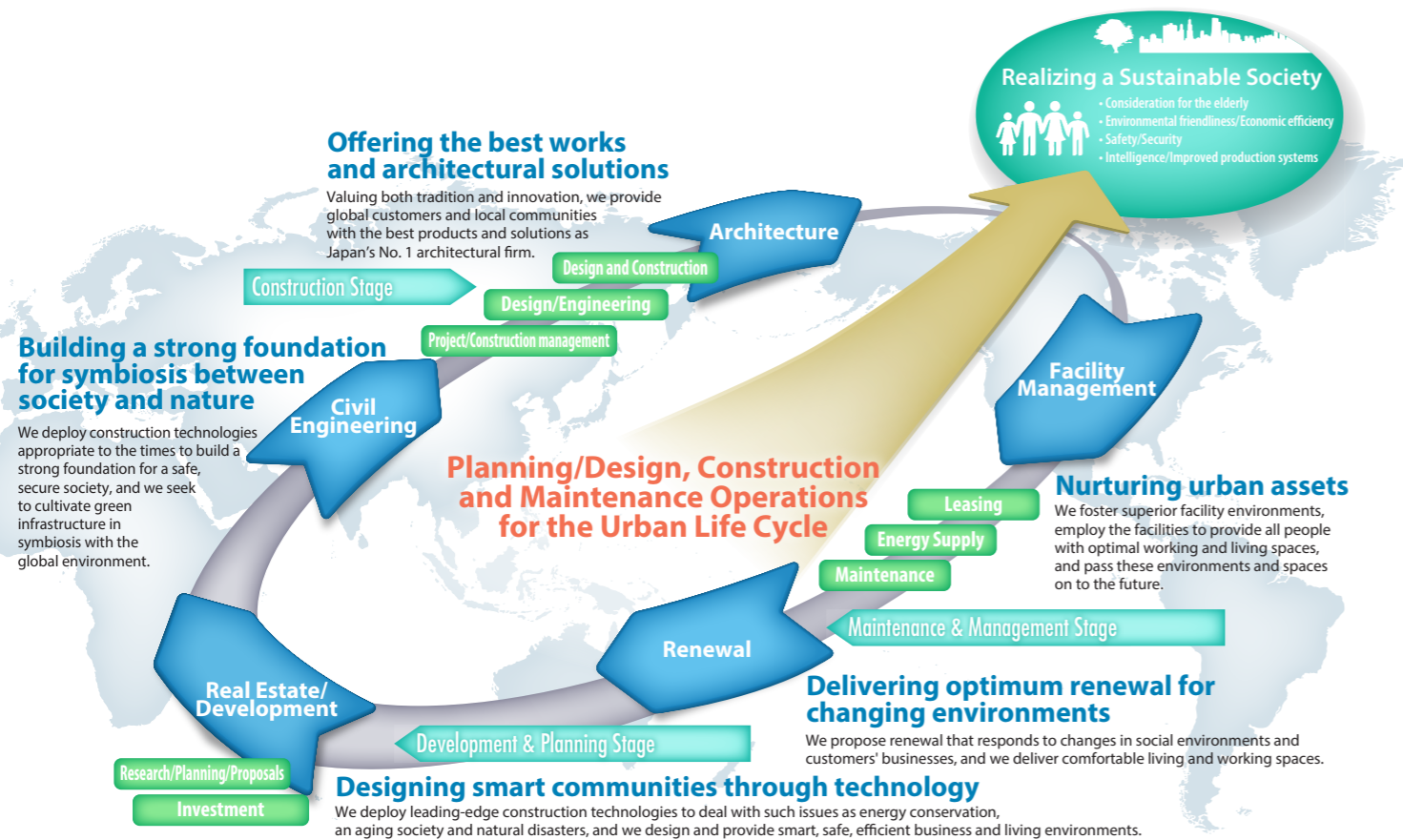
Masahiro Miyashita
President

Group Growth Strategy for 2025

Participation as a group in urban creation on a global scale

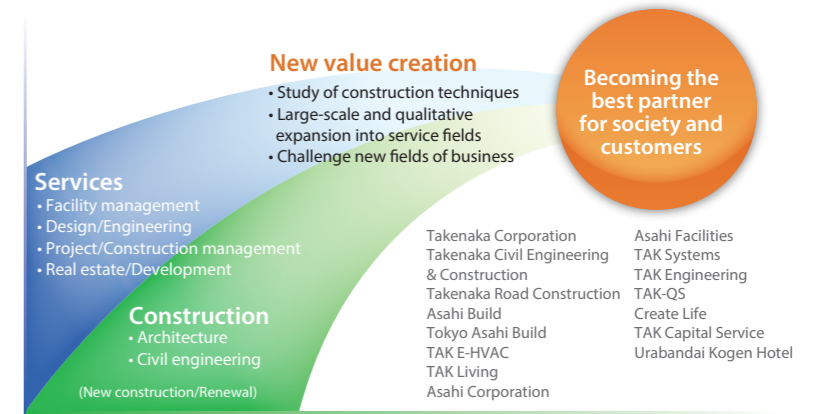
We at the Takenaka Group have been conducting activities by treating group-wide areas of business as "cities." Throughout every stage of urban creation and throughout the life cycle of these "cities" from planning and design to construction, maintenance and operation, we will continue to deepen dialog with our

stakeholders and work to meet various challenges both in Japan and abroad based on close collaboration among all our group companies. We will do this with an eye to realizing a sustainable society where people can live with peace of mind.



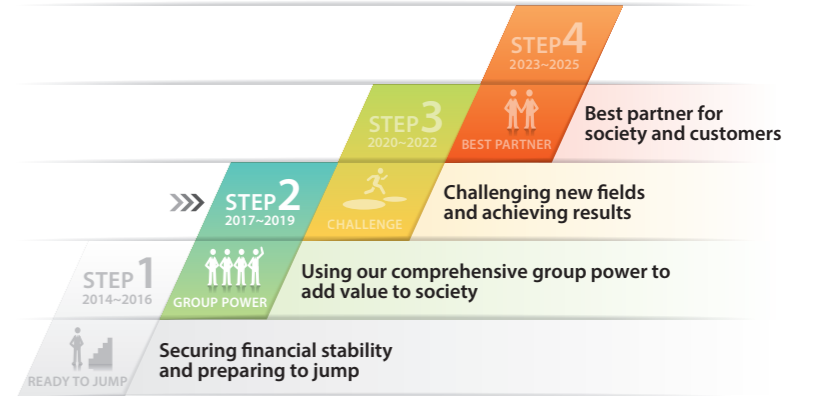
New value creation

Contributing "throughout every stage of urban creation" requires pursuing activities with close collaboration among Takenaka Group companies and stakeholders in the peripheral areas of construction projects. In our rapidly changing society, even better stock and business continuity need to be secured. The expansion of PPP, PFI and other projects, acceleration of measures for renewable energy, and AI, robots and Big data are exerting tremendous influence over urban creation, substantially changing the very roles played by buildings and infrastructure. We intend to establish ourselves as the best partner for society and our customers by providing new value through new solutions realized by a fusion of architectural technologies and services.



Steps toward growth

All our group members will work in unison to provide society and our customers with new value through individual efforts by each of us to the quality of our specialized technologies and services on a path to growth. In STEP 1, we sought to promote collaboration among our group companies and improve our revenue base to enhance our production capabilities, thereby building the basis for urban creation. In STEP 2, while promoting group-wide collaboration, we will create new value for urban creation based on the results of STEP 1, with a view to steadily making progress for 2025.



A review of last year and activities to be conducted over the next two years

Year 2018 is the second year of the three-year plan (STEP2) that commenced last year. In STEP2, we set the target of clarifying the Takenaka Group's vision by developing a clear picture of the kind of sustainable society the Group Growth Strategy for 2025 is aiming for. We will work hard as Japan's No. 1 architectural firm, valuing both tradition and innovation. To this end, we have decided to implement group-wide measures to enable work to be carried out in a sustainable way that is friendly to the environment and that significantly improves productivity across the group and helps individual employees improve their work-life balance (WLB).

Committee for Drastic Productivity Improvements across the group, and started to improve work-life balance for our employees through a number of dialogs in different sites and selected WLB Promotion Construction Project offices and Facility Management (FM) centers to promote related activities. We also improved productivity through efficient construction by widely promoting Building Information Modeling (BIM) and the Smart Work initiatives. In our business performance, these efforts and the strong market enabled us to meet our predefined targets, just as we did last year.

techniques associated with urban creation. Moving into the second year, in addition to continuing our improvements to work-life balance, we plan to continue to implement sound business management to improve our ability to offer new value to our customers and to society. In the construction business, which forms the core of the Takenaka Group's business, we plan to eliminate all serious public disasters and workplace accidents, making quality improvement a priority task. To contribute to every stage of urban creation, which is the Group Growth Strategy, we are introducing new ways of promoting our urban creation business and offering solutions to social issues, creating new global value across the group.

Last year, during the first year of the plan, we established the Work-Life Balance

We also set up the Urban Creation Strategy Department to integrate expertise and

□ Sustainable society we are aiming for and vision for 2025

We have decided to incorporate the targets to be achieved by 2019 in the next three-year plan, while formulating the strategies for 2025 based on the sustainable society and corporate vision that we aspire to achieve. For the sustainable society we are seeking to realize in and after 2025, we will further improve our international competitiveness and the “compact city + network” plan to help halt population decline, create new jobs, and foster local revitalization. The concentration of population in large metropolitan areas will still be continuing

in 2025, however, with metro municipalities having their own international networks and growing populations, while at the same time some regions will be dealing with stagnant local economies, population outflow, fiscal tightness, and challenges to be met for the improvement of social infrastructure. Further, risks such as the threat of natural disasters, political instability, corporate scandals, and isolation from the international community will continue to exist, against which local and macro level responses will be required. These imply a diversity of Japanese urban

areas in 2025, and indeed the social issues to be resolved, social systems to be built, and paths to be followed as the shift to a sustainable society will differ by area. The Takenaka Group will deepen its dialog with the community and stakeholders in each urban area while taking global perspectives and communicating the direction of urban creation in its “urban creation strategies,” thereby contributing to the creation of sustainable urban areas.

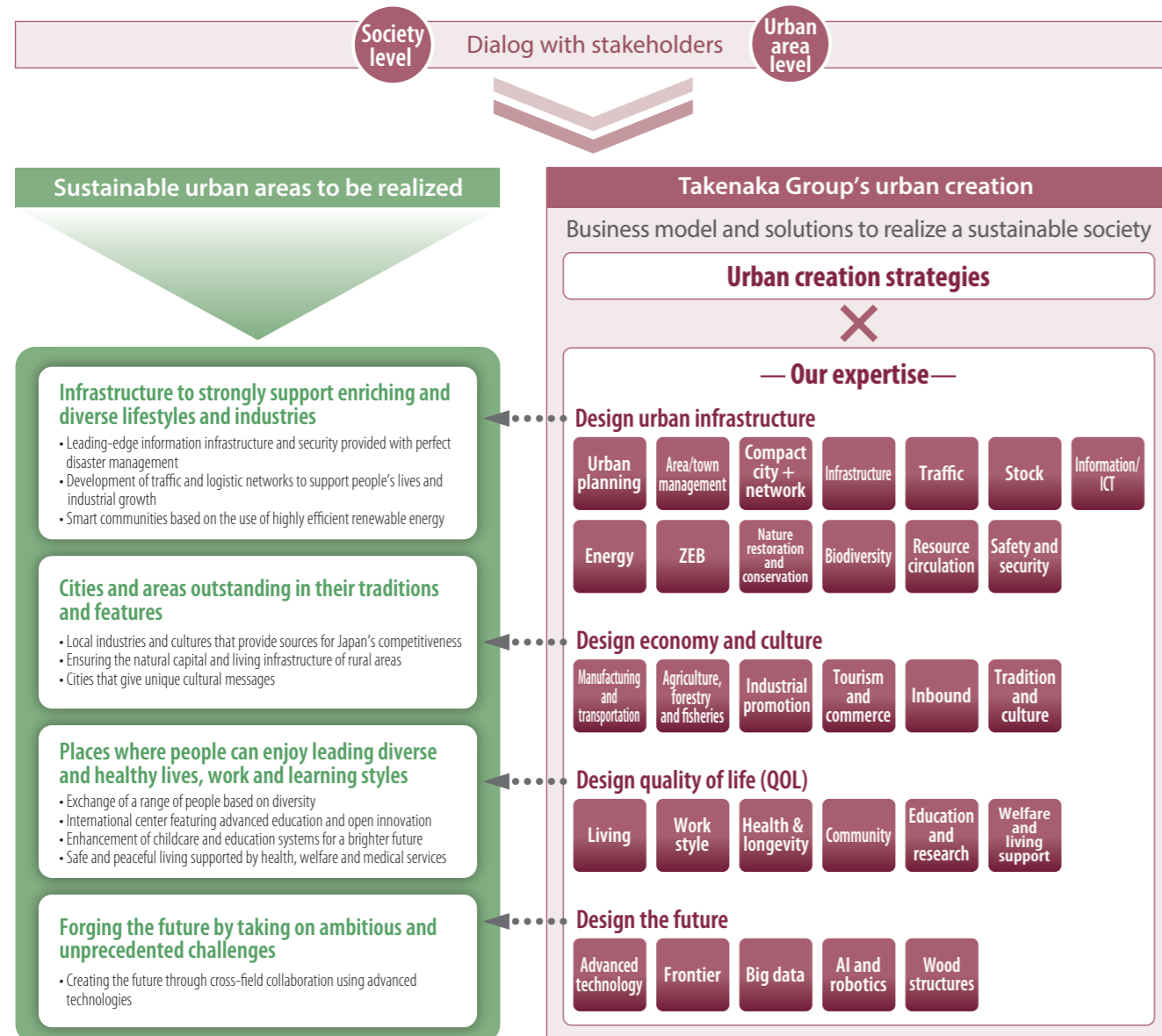
□ Integrated engineering firm for urban creation

The Takenaka Group plans to shift to the model of an integrated engineering firm for urban creation that works to build social systems for a sustainable society, with a view to meeting the needs of society by engaging in the construction and real estate business as its core business fields. Based on urban creation strategies, we

will add new solutions to the construction business from the viewpoints of “urban infrastructure,” “economy and culture,” “quality of life (QOL)” and “the future” to create new business models while designing necessary social systems, thereby creating value that we can share with society. We will expand our managerial resources

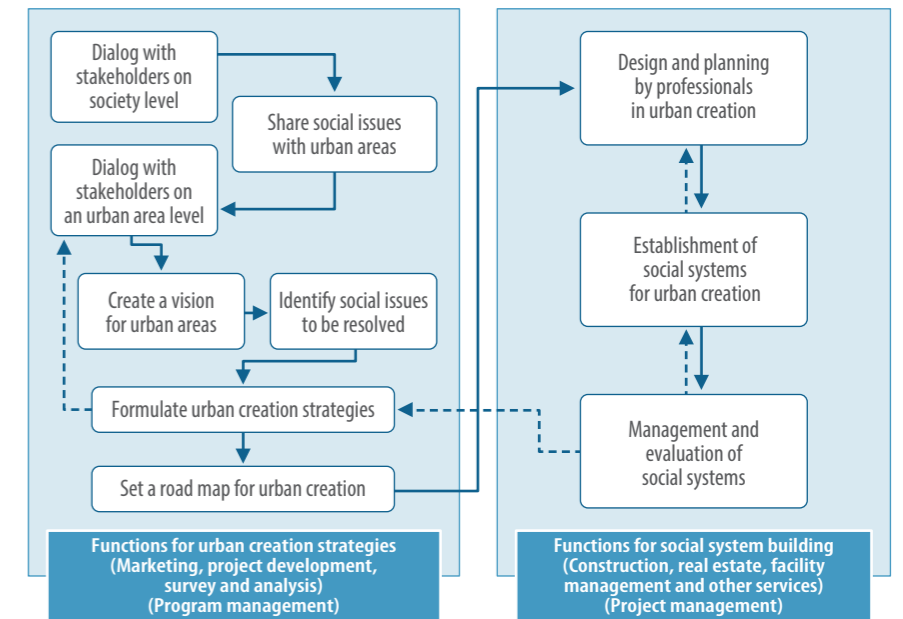
including human resources, skills and ICT to exert more expertise and technological and managerial capabilities, drive open innovation, and promote the provision of attractive workplaces as well as the establishment of functions and organizational systems with advanced engineering capabilities.

..... Business Scope of the Integrated Engineering Firm for Urban Creation



□ Urban creation process

The urban creation process is composed of the functions for urban creation strategies, which are necessary to formulate an urban creation road map, and of the functions for social system building, including construction, real estate and facility management. The functions for urban creation strategies include project management, which Takenaka has been engaged in, and program management, which is required for social system planning. To achieve steady growth as an integrated engineering firm for urban creation, the Takenaka Group will promote the activities conducted at each stage of the urban creation process together with stakeholders in a planned manner, thereby successfully implementing its growth strategy for 2025.



□ Developing an urban creation strategy and future prospects

As an integrated engineering firm for urban creation, we identify social needs that alter with the changing times and issues faced by society and local communities so that we can offer new value in construction and suggestions for further value creation. We aim to deliver urban creations filled

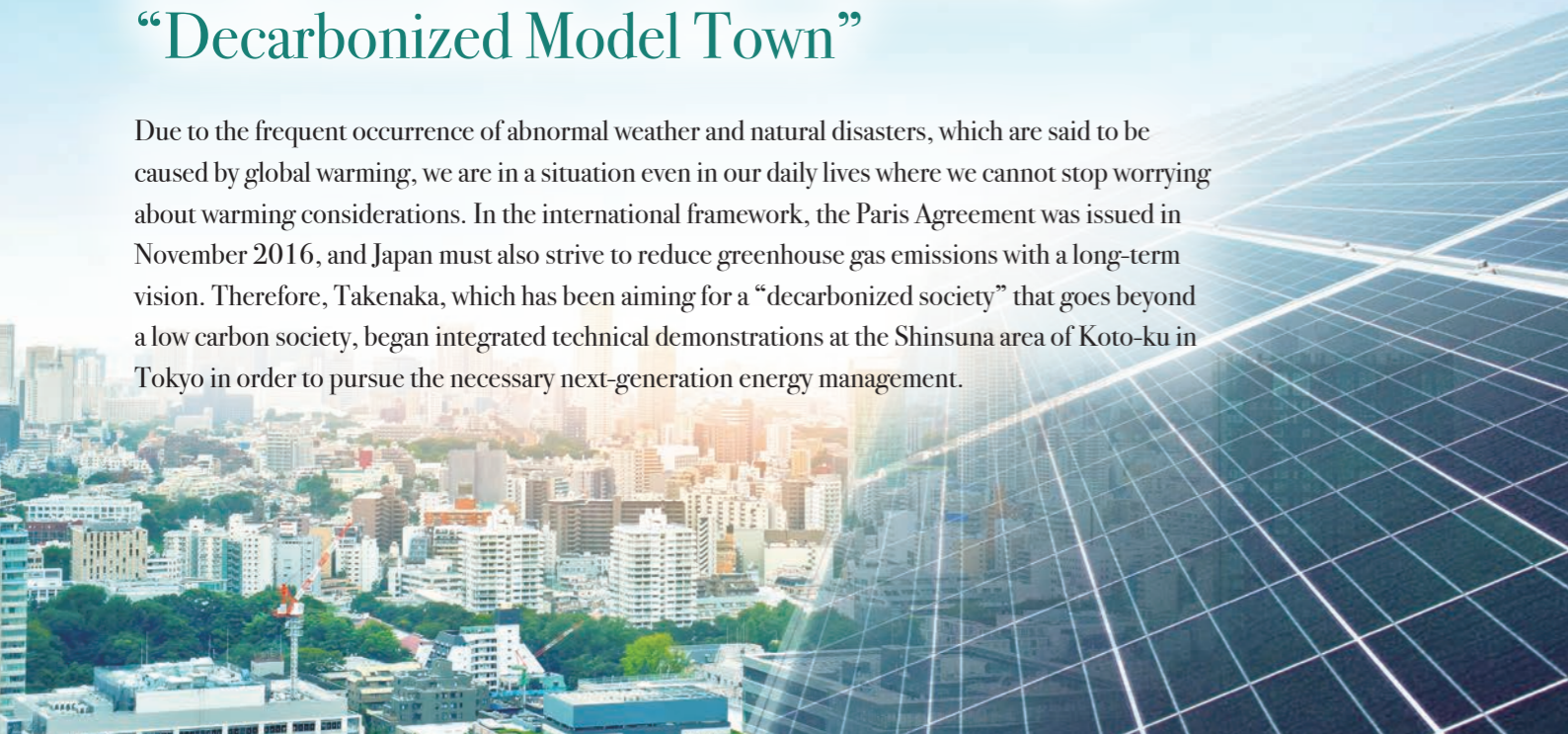
with dreams for the future that provide diverse and healthy lifestyles through sound infrastructure that support the traditions and character of that society. To do this, we communicate with stakeholders through our Urban Creation Strategy Department, which is the core organization of the Takenaka Group's

urban creation business, to identify social issues in urban areas. We also pursue solutions to these social issues and implement them after conducting demonstration experiment through MACHInnovation, which is an open innovation scheme.



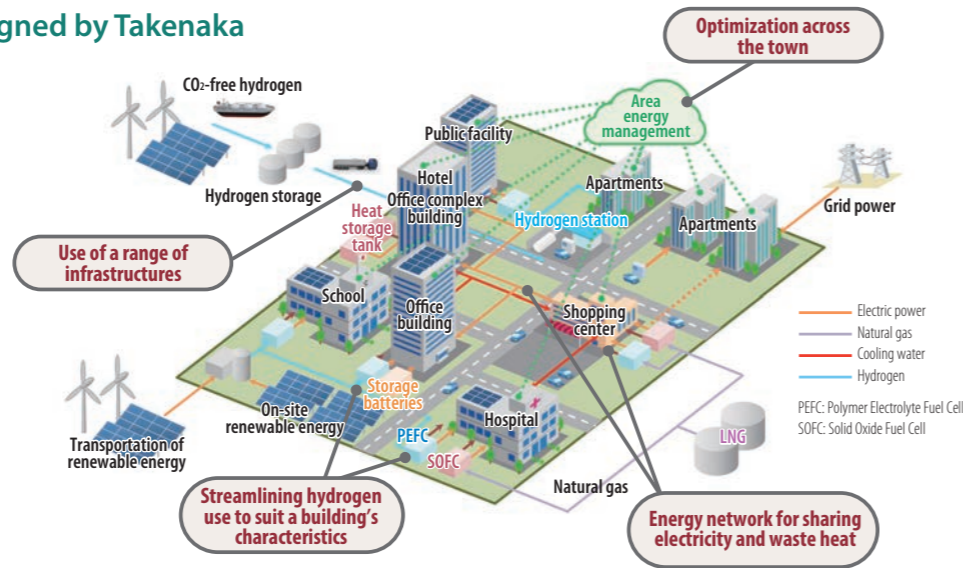
Energy Management Aimed at Building a “Decarbonized Model Town”

Due to the frequent occurrence of abnormal weather and natural disasters, which are said to be caused by global warming, we are in a situation even in our daily lives where we cannot stop worrying about warming considerations. In the international framework, the Paris Agreement was issued in November 2016, and Japan must also strive to reduce greenhouse gas emissions with a long-term vision. Therefore, Takenaka, which has been aiming for a “decarbonized society” that goes beyond a low carbon society, began integrated technical demonstrations at the Shinsuna area of Koto-ku in Tokyo in order to pursue the necessary next-generation energy management.



Decarbonized Model Town designed by Takenaka

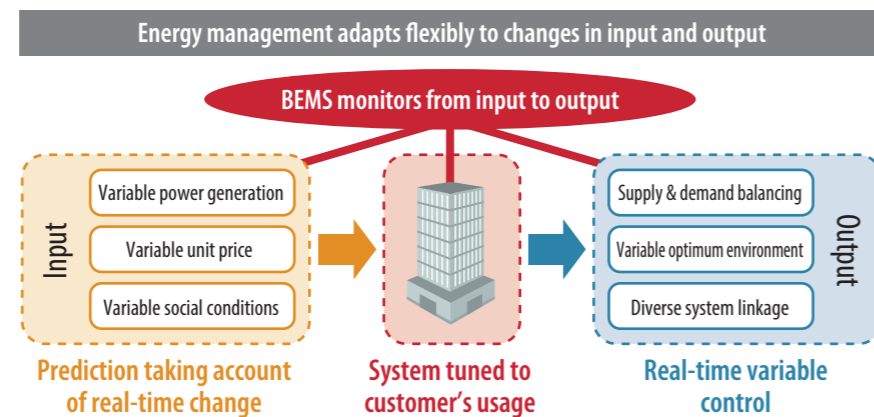
The Decarbonized Model Town that is our aim is a streamlined community with a low environmental impact, where buildings share the efficient provision and usage of energy and employ unused and sustainable energy to the maximum. We aim to reduce CO₂ emissions by 60% by 2020 and by 80% by 2050 compared to current levels through maximizing the use of renewable energy, exhaust heat, and unused energy.



Requirements for future energy management

What kind of energy management will be required for the infrastructure and facilities in the Decarbonized Model Town?

The town will require an energy management system that can balance the demand and supply of electricity by predicting a building's requirements and the power generated by solar power generators, as well as controlling air-conditioning systems and lighting in parallel with the power generation and storage systems. Through this system, local power generation and local usage will be possible even for large fluctuations in the amount of solar power generated, and this in turn will reduce its dependency on fossil fuels.

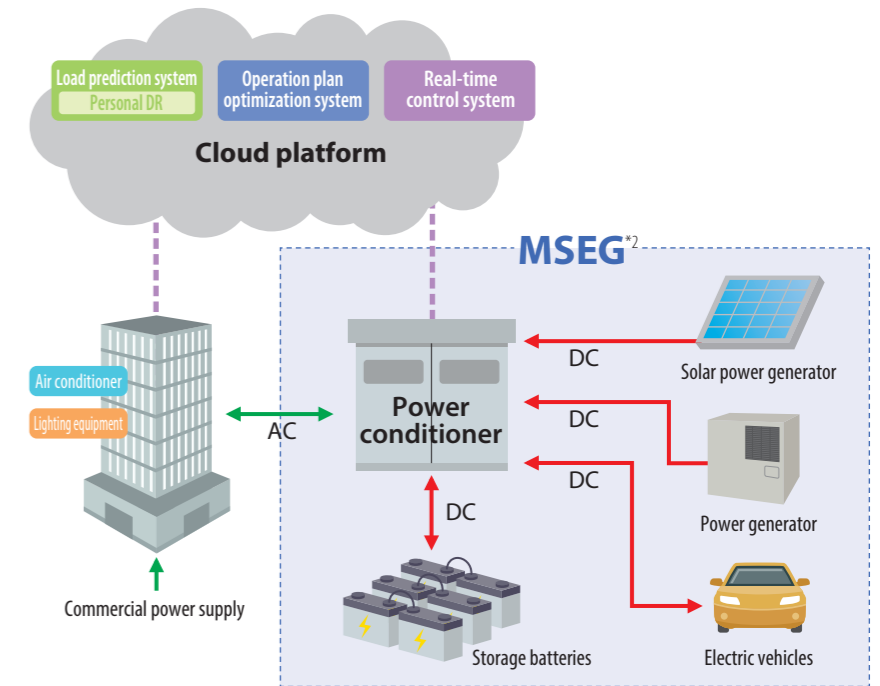


I.SEM*1—Takenaka's energy management system

The I.SEM energy management system, developed exclusively by Takenaka, can freely control the balance between the demand and supply of electric power in a building and identify unnecessary energy consumption to achieve the most efficient operation of electrical devices through the following functions.

[I.SEM functions]

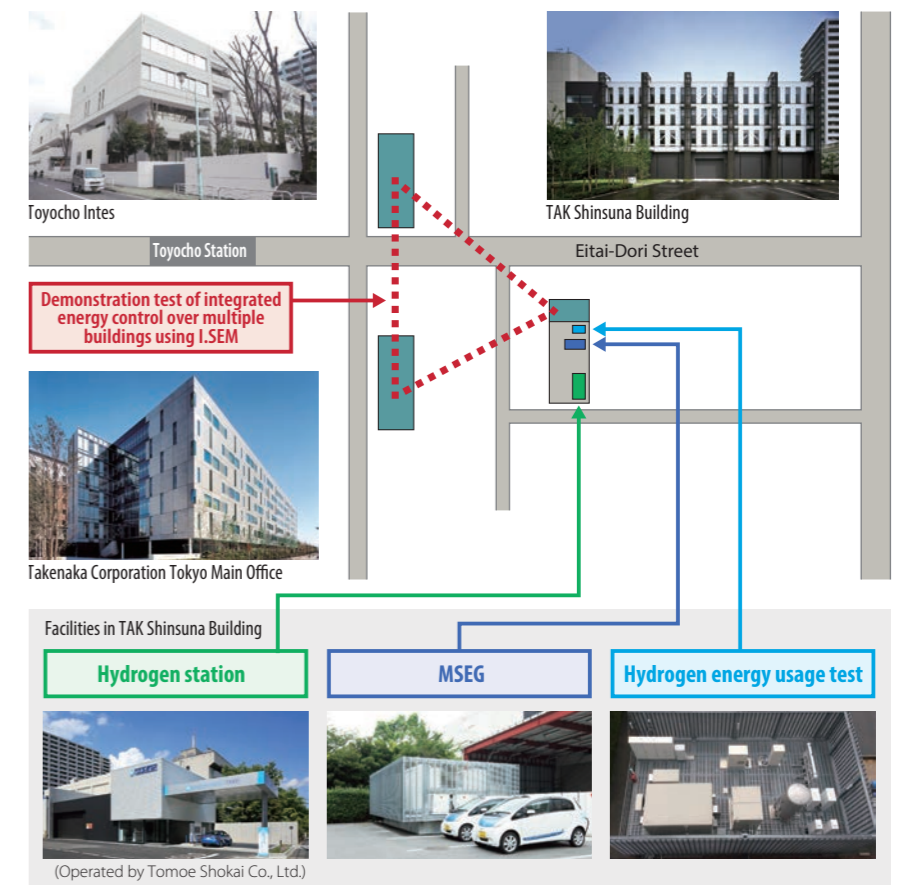
- (1) Predicts the electric power required in a building and estimates the thermal load.
- (2) Plans the optimum facility operation schedule to distribute the load.
- (3) Comprehensively controls the generator and storage batteries to control the power demand and supply power in an emergency.
- (4) Details and visualizes energy usage.
- (5) Confirms individual office's responses to an energy-savings request.



Building a Virtual Power Plant covering I.SEM-installed buildings and conclusion of a discount agreement

Utilizing I.SEM, Takenaka implemented a comprehensive energy control system covering three buildings (Takenaka Corporation Tokyo Main Office, TAK Shinsuna Building, and Toyochi Intes) in Koto-ku, Tokyo to form a Virtual Power Plant (VPP).

A VPP functions in a similar way to a utility company's power station by lowering the power consumption of buildings during a specified time in response to a utility company's energy-savings request. We have configured a cloud-based real-time control system for the air-conditioning systems, power generators, and power storage systems in the three buildings that uses I.SEM to reduce energy demands within 10 minutes in response to a submitted energy-savings request. Based on this trial, we concluded a demand response partnership agreement covering the three buildings with our TEPCO energy partner effective from April 2017. As it is believed that the role of VPPs will increase in the future, we will utilize this know-how in the solutions we offer our customers.

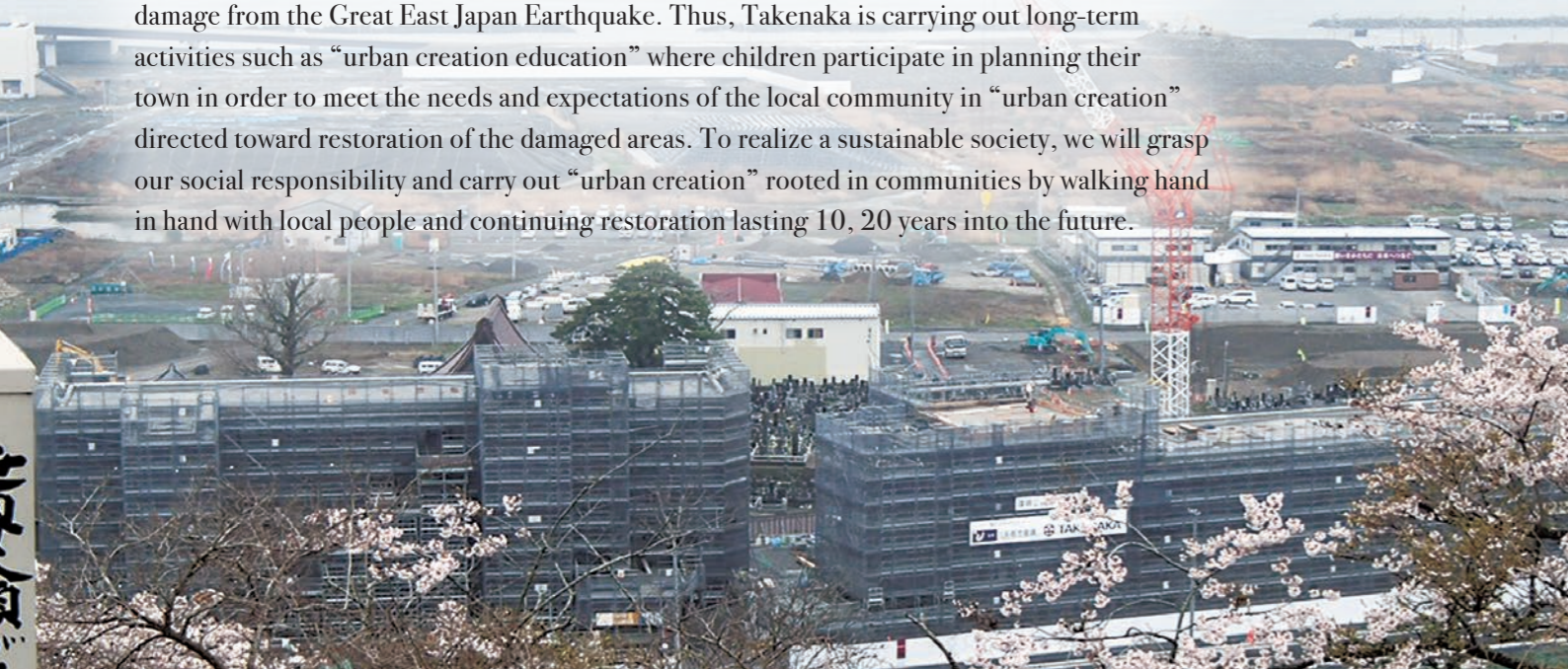


*1 I.SEM: I. Smart Energy Management. A new energy management system capable of optimally controlling power demand. Standing for Interconnection, Interoperability, Interface, and Interaction, "I" represents the concept of a cloud system that links a variety of hardware and software tools.

*2 MSEG: Multi-Source Energy Gateway. A real-time system capable of controlling power demand by integrating the various power resources such as solar power, power generator, and EVs.

“Earthquake Disaster Recovery” – Walking Alongside Communities

Continuous efforts are necessary for reconstruction of afflicted areas that suffered tremendous damage from the Great East Japan Earthquake. Thus, Takenaka is carrying out long-term activities such as “urban creation education” where children participate in planning their town in order to meet the needs and expectations of the local community in “urban creation” directed toward restoration of the damaged areas. To realize a sustainable society, we will grasp our social responsibility and carry out “urban creation” rooted in communities by walking hand in hand with local people and continuing restoration lasting 10, 20 years into the future.



Recovery assistance projects

Takenaka has been involved in a number of projects to assist in the urgent rehabilitation and reconstruction of areas affected by the Great East Japan Earthquake. In Ishinomaki City, Miyagi Prefecture, where damage from the earthquake was extensive, we have been involved in a number of building projects, including reconstruction of Ishinomaki City Gymnasium, Ishinomaki City Children’s Center 1, Ishinomaki Municipal Hospital 2, which is an important symbol of recovery, and Ishinomaki City Shin-Kadonowaki District Reconstruction Project 3 in the area that was devastated by the tsunami. Onagawa Town, Miyagi Prefecture, like Ishinomaki, was another seriously damaged area, and we were involved in construction of the Onagawa Athletic Park Housing 4, which was completed in 2014 as the area’s leading recovery project, contributing to the community’s early return to normal life. In April 2017, we commenced the Onagawa Town Office Construction Project 5, which will bear one of the core functions of the new Onagawa Town, under our project management, including designing, building, and supervising. In addition, we have been supporting the recovery of the areas through a number of housing construction projects. These include Kaminakajima Restoration Public Housing 6 (Kamaishi City, Iwate Prefecture), Kesenuma City Saiwai Town Public Housing, and Uchinowaki Public Housing (Kesenuma City, Miyagi Prefecture).



Ishinomaki, my adopted hometown

Seven years have passed since the catastrophic earthquake and tsunami of 2011, and Ishinomaki City is entering a new phase in the reconstruction effort, moving from repairing the broken to initiating new projects. We who live here love our city and are working toward creating a new and better Ishinomaki. Takenaka Corporation is deeply involved in many reconstruction projects, including my workplace: Ishinomaki Community & Info Center, where we use a diorama provided by Takenaka to explain the disaster and reconstruction projects to visitors. We have a duty to keep alive the lessons learned from the disaster to save future lives. Please visit us here in Ishinomaki, where we also have beautiful scenery and delicious seafood!



Mr. Richard Halberstadt, Director, Ishinomaki Community & Info Center

Urban recovery together with children

Takenaka has been walking side by side with disaster-affected communities to help them recover psychologically through a range of programs, including the Urban Recovery Together with Children program. This program started with an intracompany competition for ideas to support recovery in disaster-affected areas, and it is now being conducted as a commission from the Japan Committee for UNICEF and in collaboration with Yamagata University. The program is designed to help local children to rebuild their confidence in the future and renew their connection with their town. Working together with local governments, academic experts, and NPOs, we continue to offer activities that allow children to participate in the recovery of their community.

Children’s Town—Ishinomaki

Over the six years since 2012, we have worked together with local communities and volunteer organizations in hosting a job simulation activity for small children called Children’s Town—Ishinomaki. This is an entertaining educational program that teaches children how the economy of a small town works through play by setting up stores in an actual shopping street that was damaged by the tsunami. The program grew into a postdisaster annual event, with more than 1,000 children participating when the weather permits, and offers a precious learning opportunity for the town.

Creating parks in the Shin-Kadonowaki district

We have been holding Shin-Kadonowaki District Park Creation workshops since 2015 in the Kadonowaki district of Ishinomaki City, where land readjustments for restoration projects take place, at which children can express their ideas about the three new parks that are being built. Kadonowaki Elementary School was completely burned down by a fire triggered by the tsunami and closed in March 2015. The last graduates from the elementary school now attend Kadonowaki Junior High School. We asked 80 first-year children to plan a park in 2015. We then drew up a basic design based on the suggestions they made, and the parks were actually built with the cooperation and agreement of the project owner, the Urban Renaissance Agency. In 2017, the children were in their third year of junior high school, and together with nearby residents, they planted flowers in an almost-completed park. In this way, we are building a recreational area that reflects children’s ideas and dreams in their newly rebuilt town.

Walking alongside communities

It has now been seven years since the Great East Japan Earthquake, and the disaster-affected areas are entering a new phase. We naturally value the renewal of the urban framework, including infrastructure reconstruction and the provision of safe and secure buildings. We also place a high value on enabling the residents of the town to live enriched and diverse lives so that the town can once again become their “hometown,” retaining the characteristics and traditions of a town that will attract more people into the community. We truly

Urban creation—working together over the years

Many of the people who started living in the restored housing came from temporary housing, and many of them were elderly. Everybody was anxious. Therefore, it was a big task to build bonds between residents. We appreciate Takenaka Corporation’s efforts not only to build safe and secure housing but also to give us opportunities to communicate with each other by building parks that incorporate our children’s ideas, and helping us, residents, to plant flower beds together. Now exchanges between residents have become lively, and the parks function as recreational zones for everyone—from children to senior citizens. The parks have actually grown into communication spaces that even people from outside the Kadonowaki district visit. We express our sincere thanks to Takenaka for their cooperation and hope that we can continue to work with them to recreate our urban areas.



Mr. Kazuichiro Tomi, Chairman, Kadonowaki Nishi Public Housing Residents’ Association, Ishinomaki City

Areas and Projects

Four Support Menus	Projects and Publications
1. Restoration: Adventure Playground	2012–2013 Imagine a future classroom
2. Restoration: Children's Town	Reflect in public solicitation guide
3. Restoration: Urban Creation Study	Since 2013 Whole Satoyama Play Park
4. Home Town Restoration Project	Since 2012 Children's Town—Ishinomaki
	Since 2015 Shin-Kadonowaki district park construction
	Reflect in basic design
	Since 2012 Presenting the Future of Shichigo—Our Town in Eight Years
	Publications and exhibition for the local community and local government



hope that these rebuilt and newly formed communities in the disaster-affected areas will grow sustainably into the future. To that end, treasuring the experiences and relationships gained through communicating with people in the disaster-affected areas and through reconstruction projects, we will continue with the restoration work, estimated to take decades, in our role as urban creation experts, working and walking side by side with these communities.

Dreams into Reality Work-Style Reform Linking to Future

Amid declining birthrates and an aging population, initiatives are accelerating in Japan for work-style reforms aimed at a “Dynamic Engagement of All Citizens Society,” which has been put forward by the Japanese government. Accordingly, we have established a “Work-Life Balance Improvement Committee” that is chaired by our president, and we are actively addressing “work-style reform” with the goal of realizing “attractive ways of working.” Top management decided on a promotion program after discussing “the way employees and the company should be” by extracting issues related to “how to work” through workplace dialog and so on.

Eleven Measures to Promote Work-Life Balance (Gist)

- (1) Review human resources management (labor regulations, etc.).
- (2) Restructure organizations, systems, business flows, and distribution of human resources.
- (3) Establish new working styles at construction project offices.
- (4) Find solutions to individual work problems within each department.
- (5) Restructure workplaces.
- (6) Set a productivity index.
- (7) Reinforce management skills.
- (8) Communicate our aim to build a culture of reform inside and outside the company.
- (9) Circulate information to customers and seek their cooperation.
- (10) Plan and support diverse working styles for skilled workers.
- (11) Encourage employee initiatives and teamwork.

Hosting workplace dialogs across the company

The president and council members visited all our branch offices in Japan and held dialogs with employees in their workplaces. In these dialogs, employees in various positions exchanged opinions on how to improve both labor and intellectual productivity, reduce working hours, encourage employees to take holidays, care for children and the elderly, gain the understanding of stakeholders, and other work-related topics to encourage diverse styles of working. As a part of the Work-Life Balance (WLB) Promotion Activity, from August to September 2017, office departments across the company collected information on obstacles to reducing working hours and model case studies. We also selected 30 WLB Promotion Construction Project Offices and 10 WLB Promotion Local Facility Management (FM) Centers, and we allotted them as “Closed for Six Days Every Four Weeks” workplaces, a scheme in which workplaces are closed for six days in every four-week period (six days off every four weeks for renovation). At the same time, we are identifying issues and countermeasures to reduce working hours, increase the number of days construction project offices are closed, and encourage employees to take their holiday allowances.



Scene of workplace dialog

Ideal Work Style for Employees and the Company

Based on the opinions gathered through the workplace dialogs, the council has adopted the following as the Ideal Work Style for Employees and the Company.

Sustainable LIFESTYLE

Ideal Work Style for Employees and the Company with the Stakeholders

- Use your own time and your coworkers’ time carefully.
- Enjoy a healthy and meaningful life.
- Grow together with the company.

Initiatives Taken by Employees and the Company

- Improve labor productivity and intellectual productivity to return added value to society.
- Increase unity in the workplace while valuing individual aspirations.
- Help stakeholders to understand our way of working.

Attractive Construction Industry for a Sustainable Future



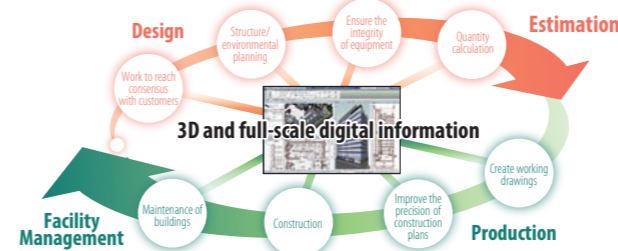
“Sustainable LIFESTYLE” poster encouraging us to make efforts in all our offices

Business process reform

We are reforming our work procedures and methods for all processes in design, construction, maintenance, and management as part of our work-style reform.

(1) Pursuit of Building Information Modeling (BIM)

We are moving ahead with digital fabrication, pursuing BIM and front-loading in an integrated process from design to construction, so that we can make the transition to a business flow founded on digital data that will bring greater productivity to us and to our cooperating companies and create a new mechanism for building production.



(2) Introducing ICT and robotics

We are working on various developments to reduce the workload at construction sites, including a robot transport cart “Camo-on” that tracks and follows workers’ movements.

(3) Reinforcing management skills and improving the working environment

- We reinforced the management skills of construction project office managers to improve how they schedule day-to-day working hours and holidays to safeguard the health of our workers.
- We are improving our work efficiency at local FM centers with dramatic workplace changes and application of ICT.



Mikawa-Toyota FM Center

Aiming to close for six to eight days every four weeks

Construction sites and work styles are changing drastically, including development of work environments more amiable to women and improvements in productivity through BIM data applications. To safeguard the continuation of the construction industry, construction specialists like us need to promote the exciting aspects of construction and work-style reforms. This is why we are aiming to close for six to eight days every four weeks, which was previously regarded as impossible, to give our employees a better work-life balance.

Mr. Tomohiro Aoki, President
Aoki Doboku, Ltd. (Scaffolding, earthwork, and concrete specialists)



The Movement of Government and Industry Associations (Japan Federation of Construction Contractors)

The Council for the Realization of Work-Style Reform approved our “Action Plan for the Realization of Work-Style Reform” on March 28, 2017. With the introduction of penalties for noncompliance with the plan to limit long working hours, the construction industry, which had been exempted from overtime working hour regulations, has been given a five-year grace period to apply the regulations. With this decision, a liaison body for related ministries and agencies was formed and on August 28 issued the “Guidelines on Establishing Optimal Schedules, Etc., for Construction Projects.” Alongside this, the Japan Federation of Construction Contractors announced its intention to implement a two-day weekend across the entire industry, to shorten working hours. The Federation set up a “Two-Day Weekend Promotion Office” in late March 2017 and produced its “Basic Policy on the Two-Day Weekend,” which envisages the practice being applied industrywide in roughly five years, with construction sites closed on Saturdays. On December 22, the Federation announced its “Action Plan on the Two-Day Weekend.”

Workplace reform

We have renovated our Tokyo and Osaka Main Offices and other offices, as well as our research and development institute, to introduce new styles of working that will create new value and improve productivity.

MISS (Mido Building Innovation Space Seibi) renovation project at Osaka Main Office

Renovation of our Mido Building (built in 1965, now 52 years old), the site of our Osaka Main Office, was completed at the end of March 2017.

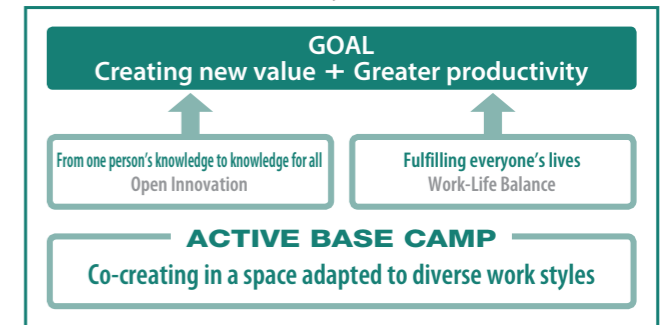
(1) Promote open innovation

We created an atrium and Co-creation Café & Space to encourage new awareness through casual meetings and productive communications.

(2) Improve diverse working styles, work spaces, and work-life balance

- We introduced a Cocreation Concierge to enable employees to concentrate on their core business.
- We created an Activity Based Workplace (ABW) to paper-less and for a individualized desk space, while providing space for coworking, including Web Meeting Desks and a Co-creation Table, so that individuals can achieve their peak performance.

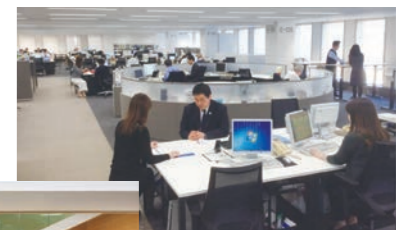
MISS Project Frame



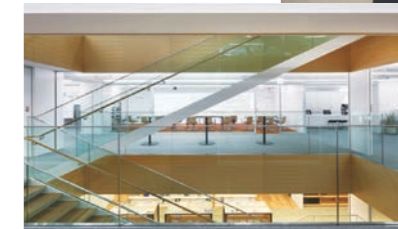
Concept (created by all participants in the workshop)

ACTIVE BASE CAMP

A facility similar to a base camp set up for mountaineering and exploration, designed so that we can achieve higher goals with human and architectural resources.
1. More contact with the field, 2. More innovation, 3. Closer together, 4. More fun
Image of activities that change awareness in four areas



Meeting spaces assigned based on the movement of workers



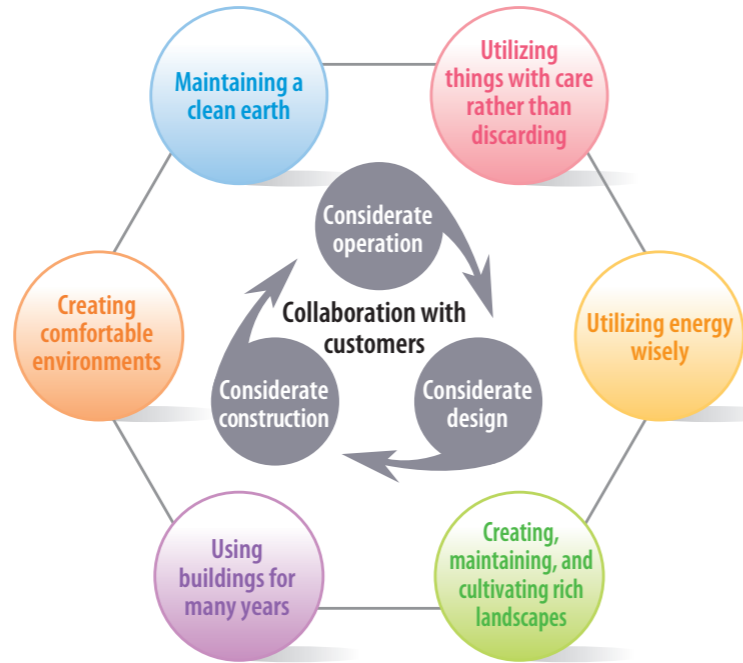
Providing spaces like stairwells where people can create together

Turning Customer Dreams into Reality

The functions required of buildings today are becoming sophisticated and diverse. Environmental considerations are given, but facilities must also be safe and secure as well as strong. We are also taking up the challenge of creating new architectural value with emphasis from a perspective of being of “people friendly.”

Sustainable works

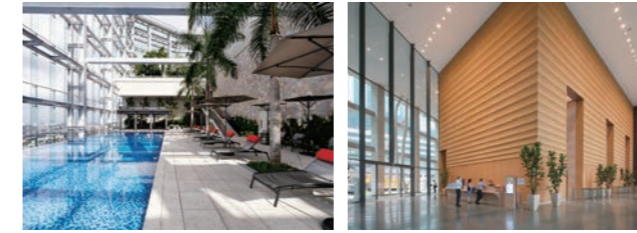
Our advocacy of “sustainable works” refers to “activities aimed at creating architectural spaces that are in harmony with the environment in collaboration with our customers.” We have adopted this approach to architecture in order to pass on a sustainable society to future generations and as a means of helping customers, who desire to contribute to the global environment and society, and to turn their dreams into reality. We have devised various methods for “earth-friendly thinking (design)” and “earth-friendly creation (construction)” to enable our customers to have “earth-friendly usage (operation).” We assess every aspect of our activities with respect to design, construction, and operation from the six perspectives described on the right in close communication with our customers.



CapitaGreen

—The Office Tower as a Breathing Tree—

Developer/Owner: Capitaland Commercial Trust
 Design Architect: Toyo Ito & Associates, Architects
 Architect of Record: RSP Architects Planners & Engineers Pte Ltd.
 Design Development and Construction: Takenaka Corporation (2014)



High-performance curtain walls that fuse functions with design

Over half of its perimeter façade is covered by living plants, resulting in a 55 percent green ratio. Its innovative double-skin façade is made up of an outer layer of frameless glass and an inner envelope of double-glazed full-height glass. Between these two layers of glass are planter boxes filled with shrubs and ground cover. The double-skin façade not only reduces solar heat gain in the building by up to 26 percent, but it also serves as a greenhouse for the plants to flourish.

Oasis in the sky

On the 40th floor, 200 meters above the ground floor, there is a Sky Forest (rooftop garden) with tall trees, and on the 38th floor there is a swimming pool, which is part of a members-only lifestyle concept gym. Making the best of the tropical climate right on the equator, it is an oasis in the sky where people can enjoy “swimming in the sky” throughout the year.

Fusion of Japanese traditional craftsmanship and local natural materials

The entrance lobby on the ground floor is made with a plaster wall using Japan’s traditional *kakiotoshi* “scratched finish” technique and Japanese firebrick tiles. Artisan plasterers from Japan created the characteristic wave-formed wall with local clay.



CapitaLand Limited

Creating comfortable environments

Office space in a skyscraper with garden views

This 40-floor skyscraper incorporates greenery on the balconies of each floor. Further, it has four-story void sky terraces on the 5th, 14th, and 26th floors, and a sky forest on the rooftop. The building provides an office space from which people can enjoy a city view over the greenery planted along the windows. This offers a sense of peace and solace as if being cradled by the earth.



Using buildings for many years

Fair-face concrete finish to prolong the maintenance cycle

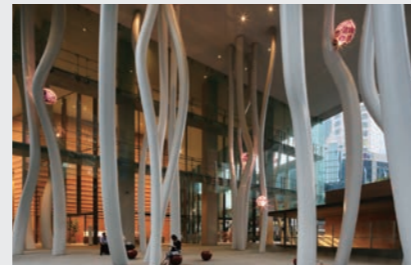
We took up the challenge of finishing the exterior walls of a skyscraper with fair-faced concrete, which was unprecedented in Singapore. To prolong the exterior’s maintenance cycle, we used a fluorocarbon polymer coating which cured at ambient temperatures. We also used an impregnation primer that reached the core to reduce concrete neutralization by acid rain and CO₂.



Creating, maintaining, and cultivating rich landscapes

Providing a relaxing open space in the city

Enhancing the aesthetics of its surroundings is another tenet of CapitaGreen’s design philosophy. Greeting visitors and tenants is an expansive lobby that boasts a triple-height ceiling and handcrafted *kakiotoshi* feature walls. Sculptures by world-renowned artists are tastefully integrated throughout and around the development to enhance the surroundings and aid wayfinding.



Utilizing energy wisely

A wind scoop system utilizing prevailing winds and a cooling storage effect of the building concrete structure (wind scoop and cooling void)

The crown of the building is marked by a distinctive red and white sculptural petalled wind scoop which takes advantage of the prevailing wind direction to draw in cooler, cleaner air from the higher altitude and directs it to the office floors after going through the air-conditioning handling units.



Utilizing things with care rather than discarding

Forest regeneration

All the palm trees in the street around the premises were preserved and replanted. In addition, the green area regenerated through this building project reached 10,443 square meters, which was approximately twice the site area of 5,478.5 square meters, creating a living, breathing skyscraper in the heart of the Central Business District.



Maintaining a clean earth

Steel formwork method and precasting method for external frame

This 200-meter-high RC + SRC structure made extensive use of precast elements, which enabled faster installation on-site, better quality control, and less noise and dust pollution. Instead of the conventional timber formwork, we utilized recyclable steel formwork and precast concrete ready-made off site, thereby reducing usage of timber and construction by-products (waste) and contributing to preservation of the global environment.



About Us
 Special Feature
 Business Activities
 Stakeholders
 Financial and Nonfinancial Highlights

Turning Customer Dreams into Reality

Design developed through comprehensive strength

Hirakata T-SITE was built in front of Hirakata Station, which is located approximately midway between Osaka and Kyoto. The project aimed at revitalizing the station front area, which was otherwise about to hollow out resulting in a loss of town culture, by providing a “community living room” where local residents would play key roles in activating the community and creating new value. Hirakata T-SITE is a commercial facility that proposes lifestyles related to books. The building sits aside the station square and provides a comfortable “community living room” feel, with its transparent façade suggesting lifestyles that revolve around books. Together with its rooftop terrace that offers views over the city, the whole building fuses into the townscape, enabling local residents to feel an affinity for the community ethos. Once someone steps into the building, the design naturally guides them through a variety of goods and services giving the feel of a bustling shopping town in a continuous flow of communication. As each floor is connected to the next seamlessly thanks to a migratory floor plan while a void section on each story is slightly staggered, visitors can enjoy feeling the liveliness of each floor and spend their time in a relaxed manner wherever they are. This was a “redevelopment” project to replace the station building constructed as part of the redevelopment project implemented about 40 years ago during Japan’s period of rapid economic growth. The T-SITE project presents a promising model for revitalization of station front areas in the face of population decline. A commercial complex that created a “community living room” making the best use of our comprehensive capabilities has become a new landmark of the station front areas.

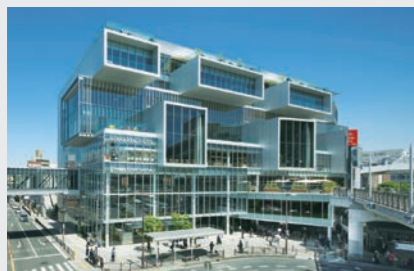


Hirakata T-SITE

—Creating a community living room—

Design: Takenaka Corporation
Construction: Takenaka Corporation and Maeda-gumi Inc. joint venture (2016)

Above the overhangs extending toward the station front area from different floors, there is an open roof terrace connected to restaurants and rest areas, and whichever the terrace visitors are on, they can feel the bustle of the city. Being a commercial complex, the building offers an external space as a three-dimensional square.



Once you step out from Hirakata Station, Hirakata T-SITE comes into a view as a new station landmark with the impressive terraces projecting from different floors.



In the “community living room” on the fourth floor that blends into the cityscape, visitors can spend their time relaxing surrounded by books.



Visitors also can enjoy meals overlooking Hirakata City on the terrace of the top floor restaurant. The view of people enjoying their meals also creates a lively station front atmosphere.

Attractive renewal

Buildings, which are essentially vessels that protect our lives and possessions, are transformed into social assets over time. Our concept of “attractive renewal” refers not only to recovering the functionality and beauty characterizing architectural structures at the time of their original construction, but it also extends to adding new functions to raise their asset value and improve their business operability. At the same time, another concept, “from scrap and build to stock utilization,” which was formulated from the perspective of environmental conservation and sustainability, is becoming increasingly pervasive today.

The functions sought in architecture are also diversifying and growing in sophistication. This means going beyond improvement of basic building functions and performance that no longer meet the needs of the times to include preserving buildings of historical significance while employing them efficiently by implementing changes in their functions (conversion) that create new value. The design and technological capabilities Takenaka has developed over many years are deployed for “attractive renewal,” for which we have received high acclaim, including in the form of awards from the Building and Equipment Long-Life Cycle Association (BELCA).



MOA Museum of Art

This is a 35-year-old art museum that stands on the hill overlooking Sagami Bay. Without touching the original exterior made of Indian sandstone, we completely renewed the building with an emphasis on the original features of the lobby and exhibition rooms. In the exhibition rooms, we utilized recycled timber and black plaster, which have typically been difficult to use in museums, to rejuvenate the viewing space but keep it suitable for exhibiting antique artworks.

1983: The 24th BCS Award
2003: The 13th BELCA Award in the Long Life Category

Basic renovation design and design supervision: New Material Research Laboratory (NMRL)
A part of the basic renovation design, final design, construction: Takenaka Corporation (2017)



Tsutenkaku

This project represents the world’s first seismic retrofitting of a steel tower building by a mid-story isolation method. While ensuring safety against large earthquakes, we aimed to convey a message from the past to the future by preserving the outer appearance of this registered tangible cultural asset as well as by reproducing the painting on the ceiling of the first Tsutenkaku building.

Diffusion Award at the 17th Japan Society of Seismic Isolation (JSSI) Awards
Prize at the 50th Japan Sign Design Association (SDA) Awards
The 27th BELCA Award

Renovation design and renovation construction: Takenaka Corporation (2015)

KITAKARO Sapporo Honkan

While preserving the outer wall and entrance hall, we expanded the former library building opened in 1926 to transform it into a confectionery store. For the exterior, we preserved and accentuated the charms of the old building, including through the reuse of custom-made tiles from the Taisho period. At the same time, we created a dynamic interior space by contrasting the stately brick wall with a modern, light structure with a void in between.

Prizes at the Japan Design Space Association DSA Design Award 2016 and at the Good Design Award 2016, as well as a commendation from the chairman of the Reduce, Reuse, Recycle Promotion Association in 2016
The 27th BELCA Award

Basic design: Tadao Ando Architect & Associates
Renovation design and renovation construction: Takenaka Corporation (2016)

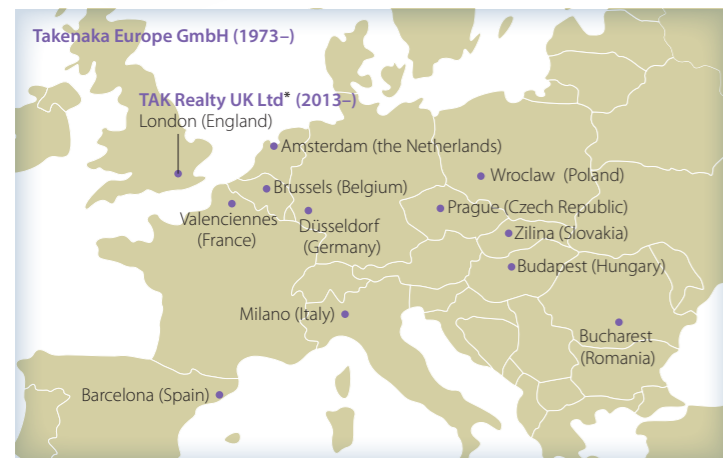


Supporting the Global Expansion of Our Customers

Our international operations began in earnest with our entry into the U.S. market in 1960. Our network now spreads around the world. We have participated in a diverse range of projects in support of our customers. This includes Japanese businesses launching overseas operations and public institutions in various countries as well as local business enterprises developing projects across a spectrum from airports to high-rise office buildings, hotels, manufacturing plants and museums. Our activities also span a diverse range comprising not only architectural design and construction works but also technical guidance and consultation services as well as materials procurement.

Europe

45 years have passed since the company opened a business office in Düsseldorf, Germany in 1973. During that time, Takenaka Europe has undertaken over 1,500 construction projects. Today about 50 employees dispatched from Japan and some 400 local employees working at operating bases in 12 countries collaborate closely to provide customers who are considering establishing operations in Europe with all the information they need in a timely manner.

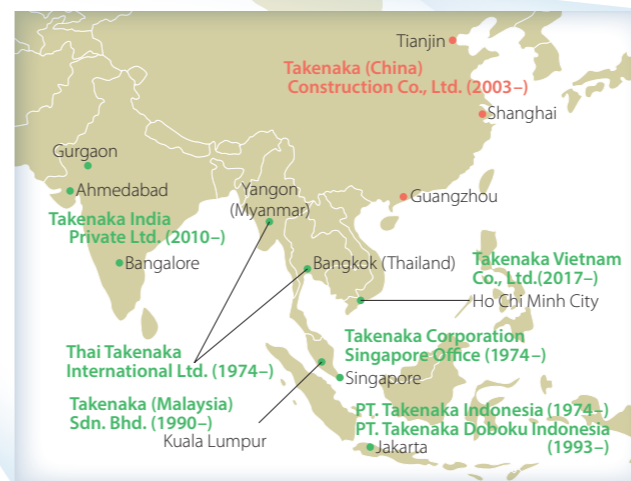


* Development business

Asia/China

Asia/China

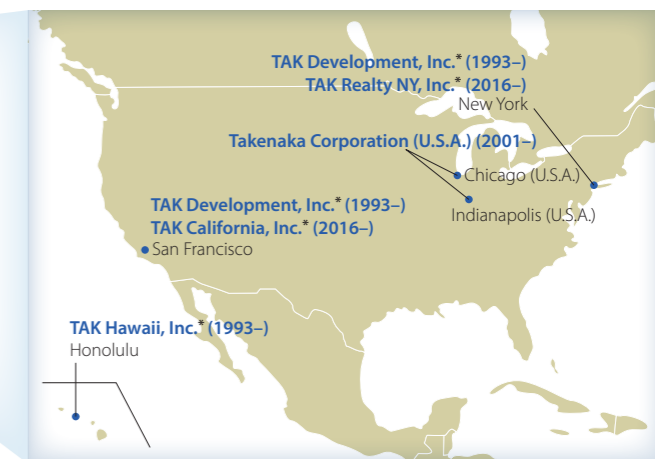
Takenaka has been conducting activities in Thailand, Singapore, and Indonesia for more than 40 years. In 2017, we celebrated the 27th anniversary of the founding of our Malaysian office. At present, about 110 employees dispatched to Asian countries including China are working cooperatively with about 1,400 local employees. Together they handle construction projects of all sizes and types.



United States

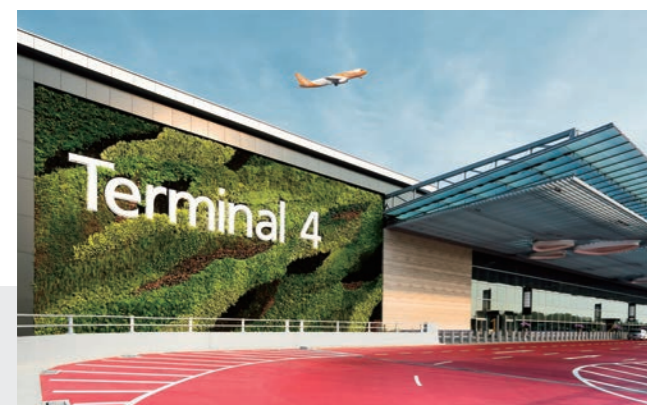
United States

Takenaka began laying the foundation for its overseas operations after extending its business to the United States in 1960. It provides general building-related services, mainly to Japanese companies, across a spectrum from consultation in site selection.



* Development business

Locations of main overseas business offices



Changi International Airport Terminal 4 (Singapore, 2017)



AEON MALL Jakarta Garden City (Indonesia, 2017)



National Gallery Singapore (Singapore, 2015)



CapitaGreen (Singapore, 2014)



Pacific Century Place Jakarta (Indonesia, 2017)



Takasago Europe New Office & Conference Building (Germany, 2015)



Yankee Candle Czech New Factory (Czech Republic, 2016)



Nissin Foods Hungary New Factory (Hungary, 2017)



Mitsubishi Motors Indonesia New Factory (Indonesia, 2016)



WUXI YAKULT CO., LTD. (China, 2015)



Mitsubishi Elevator India New Factory (India, 2017)



AMADA ASEAN (SUARNABHUMI) Technical Center (Thailand, 2016)



Hamad International Airport Emiri (Royal) Terminal (Qatar, 2013)

Creating New Value Through Urban Creation

We have participated in planning, design and construction of numerous urban redevelopment projects, including projects in metropolitan districts such as Marunouchi and Nihonbashi in Tokyo, the Nagoya Station area, and Umeda, Nakanoshima and Abeno in Osaka. We are also engaging in urban redevelopment, and PPP and PFI projects while proactively pursuing proprietary development projects and participating in urban creation organizations. Contributions made through our various urban creation activities also include enhancement of competitive capabilities in international arenas, improvement of safety and security, symbiosis with the environment, and solutions for a variety of other problems and needs facing cities today.

Urban redevelopment projects Meguro Station District Urban Redevelopment Project

We were selected to participate in this joint venture urban redevelopment project encompassing some 180,000 square meters around Tokyo's Meguro Station in 2008, based on our proposal for a complex comprising offices and commercial buildings, residential buildings and a "wooded area" for recreation and relaxation. Administrative staff assigned to the project achieved consensus among the 130 landowners and conducted administrative negotiations leading to our selection in 2012 as a designated (joint venture) agent for the design and construction work. With the conversion plan for the rights approved in 2013 and new building construction started in August 2014, the new Meguro landmark was completed in November 2017.



Basic design: Nihon Sekkei
Construction design: Takenaka Corporation

PPP and PFI projects Minato Mirai 21 Civic Center 20 Block MICE Facility Project

Under this project implemented by the City of Yokohama, which aims to be a "global MICE strategic city," a group of companies led by Takenaka was awarded a contract in 2015 to design, build and operate a new MICE facility (as a PFI project) and a hotel (as a private-for-profit project). The facilities are intended to enhance the functions of the famous Pacifico Yokohama international convention center and expected to improve urban amenities for pedestrians as well as enhancing the landscape of the port city. They are scheduled for completion in the 2020 Olympic year.
* MICE concept (Meeting, Incentive, Conference/Convention, Exhibition)



MICE Design and construction: Takenaka Corporation (joint venture)
Hotel Basic concept: Takenaka Corporation

Overseas development projects Grand Hyatt Kauai Resort and Spa

Takenaka managed everything from development to construction and has owned the Grand Hyatt Kauai Resort and Spa on Kauai, a Hawaiian island renowned for its prolific natural environment. Since opening in 1991, the Hyatt has ranked among the top ten resorts in Hawaii every year. Situated on a 103-hectare site, the facilities include 602 guest rooms, restaurants serving various international cuisines, a spa and a PGA golf course. Takenaka has established significant credibility among Kauai residents through community based business activities over many years.



Design: Wimberly Allison Tong and Goo
Construction: Takenaka Corporation (U.S.A.)



Udagawa-chō 14/15 Development Project implemented as an urban renewal project

This project is underway as an urban renewal project to restructure the area around Shibuya PARCO. The implementation of the project was approved by the government in 2016, and it is slated for completion in 2019. Takenaka is engaged in designing, supporting for planning proposals for special urban renaissance districts, and promoting the urban renewal project as an agent for specific operations.

Design and construction: Takenaka Corporation

City of Yokohama New Government Building

The new city hall is expected not only to provide Yokohama City with administrative and legislative functions, but also to provide a roofed public square for cultural and fine arts events and programs. As the architect and construction contractor responsible from the basic design stage, Takenaka will work on the creation of an open city hall and a new urban landscape that is in the public interest, and it will contribute to the community through workshops and symposiums.

Design and engineering: Takenaka Corporation, Maki and Associates, NTT Facilities, Inc.
Construction: Takenaka Corporation (joint venture)

Global Gate

This urban development complex comprising office buildings and commercial facilities as well as a hotel and a conference center will form the core of the Sasashima Live 24 district, a center for international exchange located one kilometer south of Nagoya Station. Since winning the competitive bid for the project in 2008, Takenaka has been engaged in the planning, design, and construction work with project completion targeted for 2017. At the same time, we will act as a consultant to administrative bodies on the establishment of a special urban redevelopment district, conduct an environmental assessment, etc., and provide project promotional support for commercial tenant leasing.

Design and construction: Takenaka Corporation (joint venture)

Grand Front Osaka

This large-scale urban development project involves a total floor area of some 570,000 square meters in a district spread over approximately seven hectares that is designated as a special urban regeneration area. Takenaka is not only participating in planning, design and construction but also acting as a partner in the project.

Basic design: Nikken Sekkei Ltd., Mitsubishi Jisho Sekkei Inc., NTT Facilities, Inc.
Construction design: Nikken Sekkei Ltd., Mitsubishi Jisho Sekkei Inc., NTT Facilities, Inc., Takenaka Corporation, Obayashi Corporation
Construction: Takenaka Corporation (joint venture)

ABENO HARUKAS and Tenshiba

Japan's tallest building, ABENO HARUKAS, and the Tenshiba park renewal project, which include huge grassy spaces, had a great impact on the local area. Takenaka engaged in planning support, design and construction, which contributed to increasing the appeal of the area and attracting more people.

ABENO HARUKAS
Design and supervision: Takenaka Corporation
Exterior design: Takenaka Corporation and Pelli Clarke Pelli Architects
Construction: Takenaka Corporation (joint venture)
Tenshiba
Design and construction: Takenaka Corporation

Festival City

Festival Tower (east tower), which opened in 2012, is a complex that includes Asahi Shimbun's head office, Festival Hall, and other facilities. In March 2017, Nakanoshima Festival Tower West was completed as a complex with offices, a luxury hotel, and cultural exchange facilities. This completed the Festival City project, which includes Japan's tallest twin towers and serves as a business and cultural center for Osaka. Takenaka participated in the project for the west tower, not only by constructing the facilities but also by contributing to operational issues.

Design: Nikken Sekkei Ltd.
Structure and facility design support (east tower): Takenaka Corporation
Construction: Takenaka Corporation

Ote Center Building

This is our own development project at Otemachi, the most prestigious CBD in the heart of Tokyo. Through the major improvement works we are providing significant new value and a comfortable business environment.

Design and construction: Takenaka Corporation

400/430 California

Takenaka acquired this property, located in central San Francisco, USA, in 2016. It is a "value-added" project utilizing our strengths in repositioning and renovation of the historical landmark buildings with the goal of attracting prospective tenants.

The scale of the photographs and actual building differ.

Delivering Ideal Solutions to Help Customers Solve Their Problems

Our customers require speedy responses that correspond to market changes, advanced building environments, and various safety and security. We are responding to these customer needs with total engineering from the project planning stage to building plan development, design, construction and aftercare.

Wooden architecture and structures

In recent years, the use of wood has been fostered in large-space architecture to promote the circulative use of wood resources. In particular, the use of domestically produced wood is significant for the realization of a sustainable society in which people live in harmony with forests. Cross Laminated Timber (CLT), promoted by Ministry of Land, Infrastructure, Transport and the Tourism and Forestry Agency, is now a focus of attention. Takenaka adopted CLT as a major material when extending Takenaka Training Center "Takumi," and completed a building with a warm and natural feel in a short period of time. We also developed a fire-resistant laminated lumber, Moen-Wood (patented), which can be used in large-scale wooden architecture in cities. This lumber is now being used in a range of projects, including the Osaka Timber Association Building (Osaka), Shinkashiwa Clinic (Chiba), and Koto City Ariakenishi Gakuen (Tokyo). We have made the lumber openly accessible to buildings with a high public profile to promote the spread of its use. A cypress-based model is now available in addition to the conventional larch, and the lumber has become usable in buildings of up to 14 stories thanks to a new certification as fire-resistant for up to two hours. We also developed the practical T-FoRest Series technology for the seismic reinforcement of large architecture to replace conventional earthquake-resistant walls and steel braces with braces made of CLTs.

Example of CLT



Takenaka Training Center "Takumi" (2018)

Usage example of our fire-resistant laminated lumber, Moen-Wood

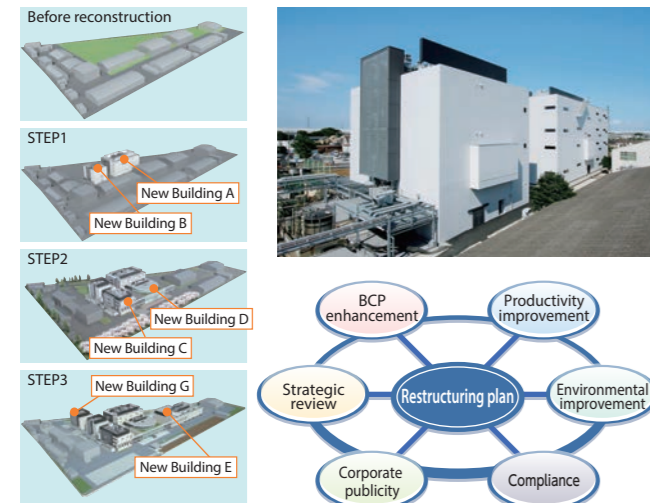


Ariakenishi Gakuen (2018)

Manufacturing and logistics facilities

For manufacturing and logistics facilities, we propose restructuring plans to solve our clients' problems and support them to achieve continuous growth in line with their business strategies. These plans include enhancing production capacity, changing production items, dealing with building aging issues, and making effective use of land. Moreover, we make comprehensive plans for "no-opportunity-lost" manufacturing facility restructuring that entails not only new building construction but also the refurbishment of production and logistics facilities and energy conservation measures.

ISHIFUKU Metal Industry Company Limited Soka Factory



Leading-edge pharmaceuticals manufacturing and research facilities

Manufacturing and research facilities for leading-edge pharmaceutical products are increasingly required to be equipped with more sophisticated technologies to meet the conditions for sterile and highly active products, PIC/S, GMP, and for the prevention of biological hazards. In response, we are developing advanced technologies to help such facilities ensure bioclean and biosafety for the manufacture of products for regenerative medicine, which is expected to represent the next generation of medicine, as well as for the commercialization of biomedical products. In constructing new buildings for these facilities, we utilize 3D modeling to confirm the details with clients for optimization of their productivity.

Bioclean and biosafety testing facilities



Latest examples



PeptiDream Building (2017)

Kaketsuken Koshi Production Center (2017)

Railway-related architecture

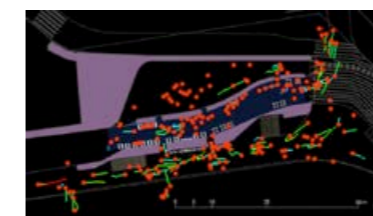
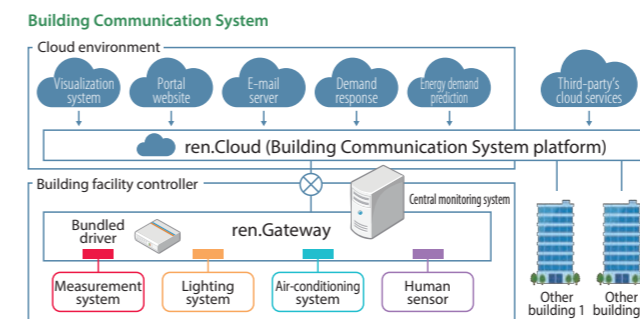
New construction and renovation of station buildings, station area redevelopment, new railway line installation, and construction of various other station- and railway-related facilities are being conducted to increase convenience in urban areas and enhance the appeal of these areas. Our technologies are being utilized in a variety of railway-related situations, from actual stations and peripheral buildings, to station-area redevelopments. Such technologies include Quiescent Capsule, which utilizes the suspended seismic isolation method to create a quiet space without vibration under elevated railways, and the Traveling Construction Method, which can structure a building over an existing railway. We offer urban creation that connects stations, cities, and people.



Hotel Dream Gate Maihama Annex

Initiatives in IoT

Utilization of the Internet of Things (IoT) technology is drawing much attention as demand for higher functionality in building systems is rising, for example, managing electricity liberalization and covering human resources shortages, or for cyber security measures. We commercialized our Building Communication System as a cloud-based IoT platform for building management. The system predicts demand for building facility usage by analyzing people's movements in and out of the building using the latest sensor technology, thereby simultaneously achieving comfort and energy savings, and streamlining management efficiency for the most economic usage of buildings and space.

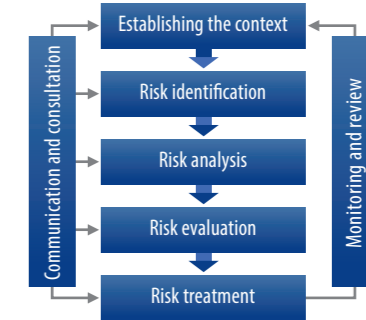


Human sensor screen (field test at the square in front of Namba Station)

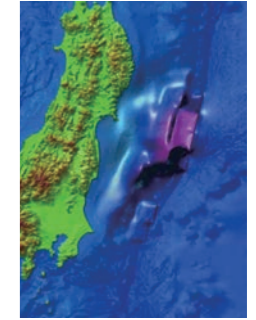
Support for corporate risk management

We identify, analyze and evaluate the various facility-related risks that may affect our customers' business activities in order to support them at every step, from formulating to implementing strategies. Our risk management service covers not only earthquakes but also measures against flooding using tools such as "tsunami simulation" and "wave power/flow analysis." We also assess tornado risks and the possible impact that could be given by ash from volcanic eruptions to help companies increase their resilience against a range of calamities, including both natural and human-caused disasters such as fires and criminal acts.

Risk management process

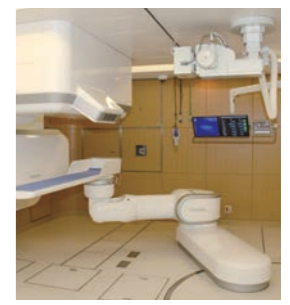


Tsunami simulation



Radiation protection technology

PET laboratories are effective for the early detection of cancer but require both the latest medical knowledge and highly reliable radiation protection technology. Our design and construction of these facilities have earned a top ranking in our home market. We are leveraging our extensive track record with high-energy accelerator facilities to realize heavy particle and proton therapy facilities that provide cutting-edge cancer radiotherapy. The National Institute of Radiological Sciences' HIMAC New Particle Therapy Research Facilities are equipped with advanced heavy particle radiotherapy equipment. The facility is equipped with a rotating gantry that uses superconducting magnets, for the first time in the world, to project the beam in any direction targeted at the cancer. We are currently building a Heavy Ion Cancer Therapy at Yamagata University Hospital that will hold Japan's second rotating gantry.



Heavy particle radiotherapy room (HIMAC New Particle Therapy Research Facilities)



Heavy Ion Cancer Therapy, Yamagata University Hospital (Scheduled for completion in 2019)

Forging the Future with Technologies

The Takenaka Research and Development Institute is the group's principal supplier of leading-edge technologies that society requires in the areas of environmental preservation, safety and security as well as production innovations and research and development of innovative proprietary seed technologies. It is contributing to achievement of a sustainable society by providing the world with industry-leading technologies and solutions in every aspect of urban creation.

Takenaka Research and Development Institute

www.takenaka.co.jp/rd

Since its establishment in 1953, the Takenaka Research and Development Institute has continuously provided value, which satisfies customers by creating and assessing new technologies that respond to the needs of the future for the entire Takenaka Group. Specialists in a varied range of fields related to construction gather here to perform research at the world's highest level in collaboration with other research institutions in Japan and overseas. An exhibition hall in which visitors experience cutting-edge technologies firsthand offers customers hints for discovering solutions and creating new businesses, and plays a role in disseminating information that can uncover potential needs. The institute develops technologies for future urban creation in the four domains of technology, which are contributing to the global environment, technology supporting safety, security and comfort, technology creating leading-edge architectural environments and technology enabling advanced construction.



Aerial view of the Takenaka Research and Development Institute



Bioclean and biosafety testing facilities

Bioclean and biosafety technology

In 2015, Takenaka established a research center to verify the quality and safety of bioclean and biosafety laboratories for the regenerative medicine and drug development fields, which the Japanese government deemed to be core fields in its growth strategies. To serve as biosafety testing facilities, the research center is equipped with the highest level of building equipment in line with the Laboratory Biosafety Manual established by the World Health Organization (WHO). In this center, we study the special structures required for environments to culture cells destined for regenerative therapy and develop assessment and verification tests concerning the advanced containment technologies used in experimental facilities.



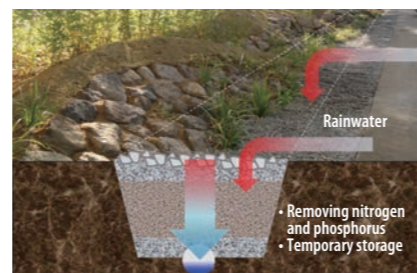
Creating health promotion spaces by stimulating the five senses

The Five Senses Response Wellness System is designed to promote people's health by encouraging exercise and lifting their mood. The system responds to human movement detected by a sensor with images, sounds, and smells to stimulate a person's five senses. Installing the equipment in an elderly care home may help improve the peripheral symptoms of dementia or commercial facilities and offices could use it as a customer attraction based on the promotion of good health practices.



Seismic reinforcement by butterfly-shaped building blocks

The ESTONE Block is a butterfly-shaped precast building block that can form a seismic wall by layering the blocks and then filling in the internal spaces that connect the blocks with reinforced grout. Unlike an RC seismic wall construction, this method using blocks does not cause noise, vibration, or dust. In addition, the working space required to build a wall is small and so the work can be carried out while the building is still in use. It is suitable for the refurbishment of currently operating hotels, hospitals, and offices, and more than 100,000 blocks have been used in a variety of buildings to date.



Greenery structure to reduce flooding risk in urban areas

Rainscape is a greenery and water depositing structure to alleviate the peak water release from premises during heavy rain in order to create a town resilient against disasters. The structure not only holds water gathered from the green areas, both in the ground and in an underground water reservoir, but it is also pleasant to the eye in normal weather, contributing to creating a landscape that attracts visitors and customers. Rainwater in the reservoir can be reused after purification, which in turn also adds value to the building.

Business Activities Conducted by Principal Domestic Takenaka Group Companies

Companies in the corporate group headed by Takenaka Corporation respond to the varied needs of customers through every stage of a building's life cycle.

■ Takenaka Civil Engineering and Construction Co., Ltd.

Crafting civil works in consideration of people and the environment

Takenaka Civil Engineering and Construction is the Takenaka Group member company responsible for civil engineering works. Its role is to promote social progress and affluent lives for people by establishing social infrastructure in accordance with the group's management philosophy, "Contribute to society by passing on the best works to future generations." It also engages in corporate activities with a focus on being "people friendly," and aimed at responding accurately to such needs as environmental protection, energy conservation, urban renewal, declining birthrates, aging population, and a highly networked information society based on an environmental policy of "Striving to build social infrastructure that coexists harmoniously with the environment and contributes to a sustainable development of society." The corporate message defining the company's mission, "Bridge between people and the earth," guides all its employees as they walk alongside their customers in an effort to create sustainable urban areas with a focus on the establishment of infrastructure that supports various industries and a diverse range of enriched lifestyles.



SHIN-TOMEI EXPWY

■ TAK Living

Bringing life into a building with the "heart of a craftsman"

Since its foundation in 1949, TAK Living has accumulated a long-term record as a specialist company in finishing carpentry and furniture. Based on an integrated structure from planning to detailed design, material procurement, processing, and construction through to after-sales services, the company is turning customer wishes into reality in a broad range of fields that use a wide variety of woods such as finishing carpentry, furniture, and fittings for offices, hotels, and apartments as well as traditional wooden buildings. TAK Living has recently been focusing on interior renovations and fully managed new interior designs and installations. The company continues contributing to creating comfortable spaces that support people's lives and minds through reliable craft skills that can quickly respond to the needs of the time and the visions of our customers and society.



CLASUWA

■ Asahi Corporation

Providing optimum products and services with consideration and flexibility

Asahi Corporation, which provides optimum products and services to customers under the banner of "consideration and flexibility," contributes to safe and smooth operations in construction sites by supplying high quality construction materials and related products through its wide procurement networks inside and outside Japan, as well as providing actual construction services utilizing the company's own expertise. Asahi Corporation also has substantial experience in greening work fused with construction technology and offers an integrated service for town landscaping and park creation, covering planning, construction, and maintenance. The company is seeking to expand its future business areas as an expert group with three core business functions of trading, construction, and procurement. By doing so, it is aiming to be a highly valued company that drives the growth of the Takenaka Group as a partner who jointly pioneers and lives the future with consideration and flexibility.



Wall greening: Vertical Forest Light

■ Asahi Facilities Inc.

Preserving the value and safety of customers' buildings

Since its establishment in 1969, Asahi Facilities has been engaged in maintenance operations throughout the life cycles of buildings. The longer a building's operating lifetime is extended, the higher its value as an asset will be. Asahi Facilities seeks to establish itself as its customers' best partner by helping them derive greater value from their buildings, and offering superior, more attentive services designed to protect and improve their property values. These include operation and maintenance services, security services, and building management services that optimize care for buildings in conducting cleaning and other tasks as well as insurance agency services that cover risk management. The company will continue to provide new value that utilizes advanced technology, and it will live up to the trust customers have put in it as a company brimming with hospitality that promptly provides customers with one-stop best solutions.



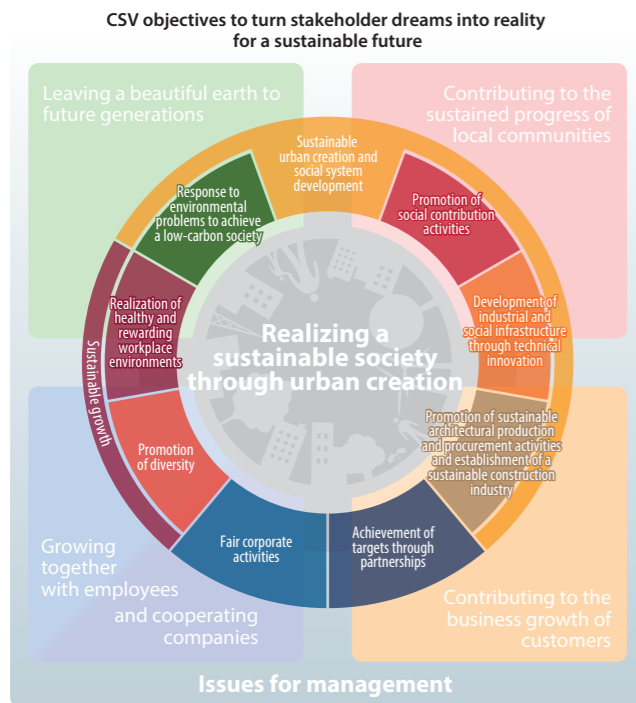
Daily facilities checks

Setting an Agenda for Realizing a Sustainable Society

Our "dream" is to create a sustainable society through architecture and urban creation, and we are working to meet the aspirations of our stakeholders, including the global environment and local communities, the market (clients and end users), employees, and cooperating companies.

To realize our dream, we have identified the objectives for creating shared values (CSVs) that we want to address with our corporate activities (both business and nonbusiness), founded on our group's CSR Business Vision and our Growth Strategy for 2025. We have developed 25 measures with respective targets and established KPIs for them. Here we report on the targets and results for 2017 and the targets for 2018. Details on the principal activities for each of the 25 measures are reported on page 35 and subsequent pages.

In our efforts to become an "integrated engineering firm for urban creation" that contributes to the development of a sustainable society, we will implement our activity plan and develop it further through interaction and discussions with our stakeholders and outside experts.



*1 Numbers in parentheses indicate the numbers of relevant SDGs. Takenaka also strives to make contributions to other SDGs through its corporate activities.



*2 The targets/results for 2017 and the target for 2018 are nonconsolidated targets for Takenaka Corporation, except for the number of community contribution programs (which includes those by overseas subsidiaries).

*3 Comprehensive Assessment System for Building Environment Efficiency. The five ranks based on the assessment indicators are: S (Superior), A (Very good), B+ (Good), B- (Slightly poor), and C (Poor).

*4 I. Smart Energy Management. A new energy management system capable of optimally controlling power demand. Standing for Interconnection, Interoperability, Interface, and Interaction, "I" represents the concept of a cloud system that links a variety of hardware and software tools. (See page 16 for details.)

*5 Accident frequency rate (Accidents followed by absence of four days or more from work): The number of death and injuries in occupational accidents resulting in absence of four days or more from work per one million work hours in the aggregate.

CSR Activity Plan and Results												
CSR/CSV objectives ^{*1}	Measures	Affected stakeholders				Indicators (KPIs)	2017 ^{*2}			2018 ^{*2}		
		Global/local communities	Markets	Employees	Cooperating companies		Targets	Results	Evaluation	Targets		
Sustainable urban creation and social system development (11)	Promotion of sustainable architectural production and procurement activities and establishment of a sustainable construction industry (12, 14, 15)	1. Identify issues and develop strategies (activities and targets) for their solution through dialog with stakeholders in society and local communities.	○	○			Number of fields in which dialogs and strategies have been developed to resolve issues	Society-level dialogs and strategies developed: 3 or more	Society-level dialogs and strategies developed: 3	○	Society-level dialogs and strategies: 2 or more. Dialogs on urban area levels: 2 or more	
		2. Build a foundation for developing business models and solutions to address issues.	○	○			—	Prepare a foundation.	Prepared a foundation in the fields of organization, management, and awareness	—	Develop KPIs for expertise and strategy.	
	3. Strengthen efforts to build in quality in order to provide high-quality buildings.		○				Implementation rate of human resource education	100%	100%	○	100%	
	4. Prevent public disasters by adopting construction methods that take into account local communities and living environments, and by implementing measures to deal with environmental pollution risks.	○	○				Number of serious public disasters	0	0	○	0	
	5. Promote the recycling and reduction of construction by-products.	○					Rate of mixed waste emission in construction of new buildings (per volume)	18% or lower	14.2%	○	17% or lower	
	6. Promote green procurement to reduce the impact on the environment in production.	○					Rate of projects that utilize priority green procurement items	85% or more	Design: 95.7%, Construction: 80.6%	△	86% or more	
	7. Create a foundation for the development of a sound, attractive construction industry.		○		○		—	Implement the Meister Program and other measures to support new entrants to the industry.	395 Takenaka Meister Certification Persons	—	Implement the Meister Program and other measures to support new entrants to the industry.	
	Response to environmental problems to achieve a low-carbon society (7, 13)	8. Develop technology for energy savings and creating energy, and apply this to projects as well as promote environmentally conscious designs.	○	○				Rate of projects assessed as CASBEE [®] S or A rank Number of ZEB projects	60% or more 3 or more	77.3% or more 5	○	65% or more 4 or more
		9. Promote energy management for buildings and cities.	○	○				Number of projects adopting the I-SEM energy management system ^{*4}	2 or more	4 projects	○	3 or more
		10. Identify and reduce CO ₂ emissions from the entire supply chain (Scope 1, 2, and 3 emissions).	○	○				—	Understand current status and examine management processes.	Understood outlines of Scope 1, 2, & 3 and decided management policies	—	Disclose information and set targets.
	Promotion of social contribution activities (4)	11. Promote community exchanges and solving local problems through nonbusiness activities such as dissemination of knowledge and technology, social contribution activities, and passing down and disseminating architectural culture.	○		○	○		Number of community contribution programs	110 or more	197	○	200 or more
Development of industrial and social infrastructure through technical innovation (9)		12. Establish, disseminate, and apply technologies for urban and architectural development to address social issues such as the environment as well as disaster prevention and reduction.	○	○				—	Develop advanced technology.	Developed technology related to urban and architectural creation	—	Develop advanced technology.
	13. Popularize wooden structures and buildings and promote the utilization of domestic timber to preserve forests and revitalize the forestry industry.	○	○				Number of wooden structures and building projects	Expand the number of projects.	5 projects	○	Expand the number of projects.	
	14. Improve productivity through innovation to cope with the immediate labor shortage in the construction industry.		○	○	○		Labor Productivity Index	2% improvement (over 2015 level)	2.14% improvement (over 2015 level)	○	4% improvement (over 2015 level)	
	15. Improve productivity drastically (also in office work), and enhance work-life balance through productivity improvement.			○	○		—	Develop basic plans.	Decided the ideal work-life balance and promotional measures (outline)	—	Implement plans.	
Sustainable growth (8)	Realization of healthy and rewarding workplace environments (8)	16. Provide opportunities such as new employee training to enhance employee growth and training for managers to support them.			○		—	Improve the quality of management training.	Organized issues and examined measures	—	Improve the quality of management training.	
		17. Ensure safe, hygienic on-site work environments.			○	○		Accident frequency rate (accidents followed by absence of four days or more from work) ^{*5}	0.5 or less	0.39	○	0.45 or less
		18. Promote health and productivity management that improves physical and mental health.			○	○		—	Understand current situations and examine measures.	Organized problems and examined measures	—	Implement measures and examine targets.
		19. Expand opportunities for active involvement of women.	○		○	○		Rate of women in managerial positions Status of activities of Komachi construction work team	3.2% or more Continuing	3.2% 12 (as of December)	○	3.6% or more Continuing
	Promotion of diversity (5, 10)	20. Secure employment opportunities for older persons.			○		—	Establish targets.	Established targets.	—	Conclusion rate for reemployment contracts: 80% or more	
Fair corporate activities (16)	21. Continuously reinforce internal controls.		○				—	—	Corporate Code of Conduct reviewed by all group employees	—	—	
	22. Promote compliance.		○				Number of serious noncompliance cases	0	0	○	0	
	23. Ensure information security.		○				Number of data breach incidents	0	0	○	0	
	24. Develop and reinforce disaster response systems.	○	○				—	Revise business continuity plans (BCPs) on a continual basis, implement, and follow up exercises and drills.	Implemented joint earthquake disaster drills and reviewed coordination systems	—	Revise business continuity plans (BCPs) on a continual basis, implement, and follow up exercises and drills.	
Achievement of targets through partnerships (17)	25. Deepen the understanding of social issues through stakeholder dialog and promote the resolution of these issues through business and nonbusiness activities.	○	○	○	○		Number of dialogs, measures, and policy plans	Organize stakeholder dialog meetings and develop measures based on outcomes of the dialogs: 2 or more	Held information exchange on sustainable procurement and work site dialog on WLB (2 in total), completed 1 (WLB) proposal	△	Organize stakeholder dialog meetings and develop measures based on outcomes of the dialogs: 2 or more.	

* Evaluation in (○/△/×), for quantitative targets

Sustainable Urban Creation and Social System Development



We construct high quality buildings that take communities and the environment into consideration. We also continue dialogs with stakeholders to develop and provide business models and solutions that help resolve the issues regarding the global environment, society, urban areas, customers, and industries through our business and nonbusiness activities.

Measure 1 Identify issues and develop strategies (activities and targets) for their solution through dialog with stakeholders in society and local communities.

As an integrated engineering firm for urban creation, we have been working to provide business models and solutions in specific areas (see "Our expertise" in the chart at bottom right on page 13) to build a sustainable society and sustainable urban areas. With this aim, in addition to the conventional stakeholder dialogs in which we engage, we started a new dialog in 2017 to gain a more detailed understanding of these areas. During 2017, we held dialogs with diverse stakeholders, including the government, academics, NPOs, private companies, and other parties who were interested in the areas of health and longevity, safety and security, and community to identify issues and the best way to solve such issues.

Safety and security

With guidance from Future Sessions Inc., we held discussions with stakeholders utilizing a dialog method called "Future Session." The discussions focused on creating "safe and comfortable urban areas" where people help each other in both normal and emergency situations, as well as various tangible aspects and directions.



Future Session

Community

Along with Yoichi Nakamura, professor in the Graduate School of Social Design Studies at Rikkyo University, we discussed the social issues currently faced by local communities and those that may arise in the future with different parties, including people who are actually working to resolve these issues. Through this conversation, we examined various approaches to community design. We plan to increase such dialogs to learn more about tangible community issues and further expand areas of discussion.

Health and well-being

Since 2014, jointly with Chiba University's Center for Preventive Medical Sciences, we have been discussing with various experts how we can design urban areas and spaces where people can enjoy healthy lives and work actively. In 2017, we compiled the concepts and direction for KENCHIKU (Healthy Community Development), which we intend to publish as the KENCHIKU Concept Book, and announced publication of the book in the symposium that we held in June 2017. The symposium hosted discussions under the topic of "health and productivity management" from the viewpoints of both software and hardware to create a space for health promotion.

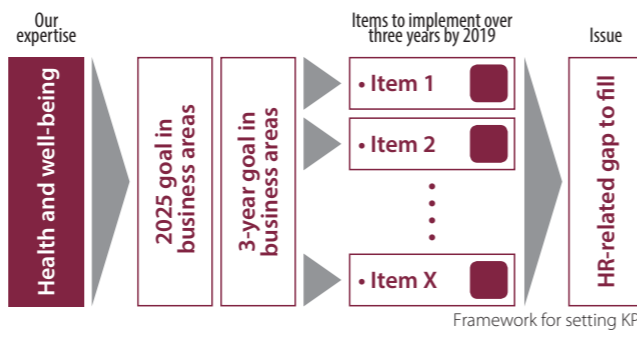


KENCHIKU symposium



Measure 2 Build a foundation for developing business models and solutions to address issues.

We have started preparing a foundation to develop tangible business models and solutions that can help resolve various social issues, with a focus on organization, management, and employee awareness. In terms of organization, we have set up a dedicated organization, the Urban Creation Strategy Department, as shown on page 12, and which is now fully functioning. As an integrated engineering firm for urban creation, we further elaborated our own management expertise in specific areas (see "Our expertise" in the chart at the bottom right on page 13). At the same time, we established a network among industry, academia, and government, and discussed a road map leading to innovation and set KPIs for 10 areas. In the area of employee awareness, we solicited ideas from our group companies about sustainable urban areas and the means to realize them. This aimed to foster a corporate culture in which employees see social issues as their own problems and seek solutions. We received some 140 ideas, demonstrating a firm response to the opportunities we provided to employees to think about social issues and urban creation. We will reflect these ideas in the development of our business models and solutions, and in 2018 we will proceed with practical activities in areas where KPIs have been set. We are also expanding areas in which to set KPIs.



Framework for setting KPI



Phase for urban creation idea competition



Promotion of sustainable architectural production and procurement activities and establishment of a sustainable construction industry.



In our efforts to continuously earn the trust of society through engaging in construction—our core business—and to continue growing with society, we seek to maintain the quality and safety of our buildings, as well as to eliminate public disasters, all of which are sources of trust. We also provide care for the global environment and local communities. Furthermore, the entire group is working to develop a sound and attractive construction industry.

Measure 3 Strengthen efforts to build in quality in order to provide high-quality buildings.

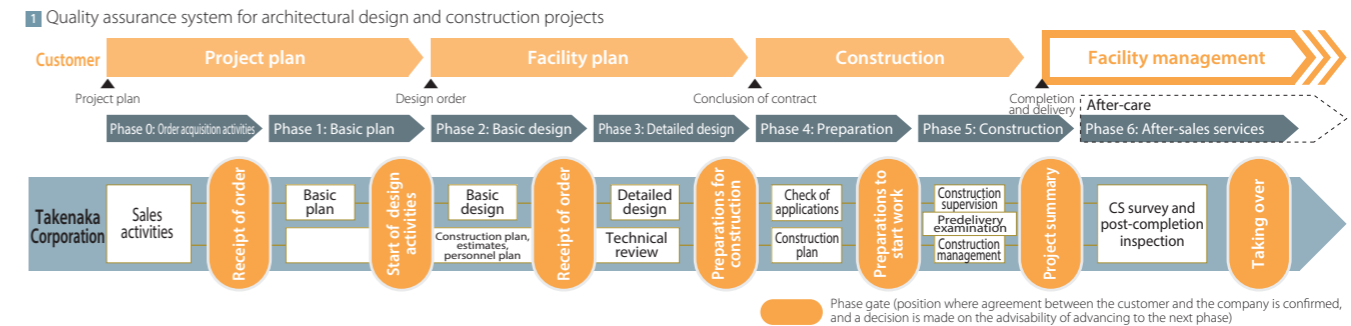
Quality assurance activities

Our basic idea of QA activities enables customers to submit orders with confidence and continue to feel assured, satisfied, and proud of our works over the entire project period, from the planning phase to the after-sales phase. To achieve this, we define a quality assurance system 1 that standardizes quality assurance procedures and concrete actions that take place in each project phase from planning, designing to after-sales services. To make the best use of our integrated design-build system, production support departments, including the Procurement Department and the Construction Engineering Department, as well as construction departments (construction project offices) work together in the project design phase to incorporate all the requirements for efficient construction. To ensure comprehensive design quality during the actual construction work, in addition to the standard construction management at the construction project offices, the Quality Department monitors design quality while the Design Department supervises the actual construction. We also make sure that we share an understanding with our customers by visualizing the construction processes and quality 2 using building information modeling (BIM), while working to improve after-sales services by taking a data-oriented approach to facility management.

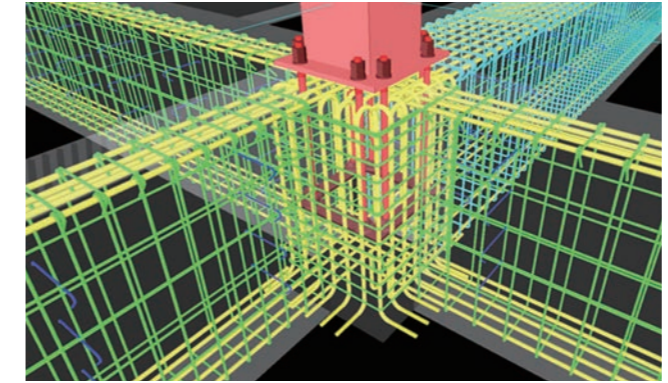
In addition, our practical technology training center (Omoi) gives hands-on training to our employees to encourage a serious attitude toward craftsmanship and quality assurance. The training center is equipped with an actual RC model 3 to learn from incorrect construction, and a technical display to learn and examine techniques, and offer a total construction experience by seeing, touching, and learning. Training is categorized into architecture, MEP, design, structure, renovation, construction supervision, and quality management. In each category, the training content progresses according to career, from basic skills, technical knowledge, management skills, through to organizational management skills. At Omoi, we also offer quality training to our cooperating companies to raise their awareness of quality assurance. We have also been providing training to overseas employees at Omoi since 2011. Our human resources development training is designed to develop skilled human resources that enable us to provide high quality buildings to a wide range of customers. In 2017, we planned and provided 24 quality management training courses for Takenaka employees and those from cooperating companies.

Human resources development

To ensure design quality to be passed through into the construction process, we provide a full range of quality management training.



Phase gate (position where agreement between the customer and the company is confirmed, and a decision is made on the advisability of advancing to the next phase)



2 Visualization of construction process using BIM



3 Practical training using RC mock-up

Measure 4 Prevent public disasters by adopting construction methods that take into account local communities and living environments, and by implementing measures to deal with environmental pollution risks.

A public disaster can cause serious damage to both third parties and social infrastructure. To spread awareness of the need to prevent accidents and to identify issues that could lead directly to public disasters, we disseminate accident prevention measures across all employee levels at Takenaka and cooperating companies.

In FY2017, we focused on utilizing checklists at construction project offices, identifying risks through inspections by in-house workers, and encouraging the use of safety management methods, including choice of correct lifting method for materials and implementation of the 3-3-3 rule^{*1} for crane operations. For weather risks, such as typhoons, in-house departments raise cautions and



Promotional posters

warnings both manually and through an IT-based alert system. We also take measures to alleviate any impact that our work may make on the surrounding environment, such as by utilizing low-noise and low-vibration heavy machinery and by comprehensively checking wastewater quality. Working towards elimination of any public disasters, we have implemented IT-based safety management in addition to physical and visual safety checks to supervise our work procedures and give society a sense of security about our work.

^{*1} The 3-3-3 rule for crane operations
When lifting a secured load with a crane, the crane operator must first wait for the loader to move at least three meters away from the secured load before lifting the load by about 30 centimeters. Then, the operator must wait for 30 seconds to check that the load is well balanced and if there are any other problems in securing the load.

KPI Number of serious public disasters

Target: 0	Result: 0
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Measure 5 Promote the recycling and reduction of construction by-products.

Various types of waste are generated in vast quantities at construction sites. We achieved a 97 percent or higher recycling rate by carefully separating waste and distributing each type of waste to an appropriate recycling company.

In order to refine separation at construction sites, we have set a reduction target for the permissible maximum limit of unseparated waste (mixed waste ratio) from 2017. At the same time, we have implemented the following measures to enable employees to separate waste correctly: (1) Installing a photographic display that lists the types of waste; (2) Installing a display with photographs and illustrations at an actual waste box for each type of waste; (3) Distribution of the Waste Separation Handbook created jointly with a waste recycling company, and conducting regular inspections and providing guidance on waste separation; and (4) Providing waste separation education by distributing the waste separation video via the Internet. As a result of such efforts, the rate of mixed waste emissions (ratio of mixed waste in the entire outgoing waste amount) in construction of new buildings reached 14.2 percent, which achieved the 2017 target figure of 18 percent. From FY2018, we started waste separation in our renovation projects, where such waste separation is often difficult due to limitations of space on the premises and work duration. We are working to raise waste separation awareness at construction project offices by also setting a mixed waste reduction target. We are also working to reduce wood waste in construction project offices by expanding usage of precast ferroconcrete components, as well as developing technologies to reduce the amount of construction sludge generated.



建設廃棄物 分別項目一覧表

分別区分	金属くず	電線くず	木くず	廃プラスチック	色分け袋
鉄くず					
ステンレス					
アルミ					
銅					
鉛					
スプレー缶					
その他					

List of separated wastes

KPI A rate of mixed waste emission in construction of new buildings (per volume)

Target: 18% or lower	Result: 14.2%
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Initiatives at group companies

Creating novelty goods by utilizing wood waste—TAK Living Corporation

TAK Living Corporation has started creating novelty goods utilizing wood waste from construction work. The wood waste generated in wooden and interior construction has to date been discarded, and reducing such waste has been an issue to be addressed for a long time. Aiming at reusing wood waste, the company planned and developed a smartphone stand jointly with the Public Relations Department of Takenaka Corporation. The stand, with a T-shaped cutout, is distributed as a novelty item at exhibitions. It is now also used as a sales tool for Takenaka Corporation, which is welcomed by customers as promoting the group's environmental contributions.



Smartphone stand made from wooden pieces

Measure 6 Promote green procurement to reduce the impact on the environment in production.

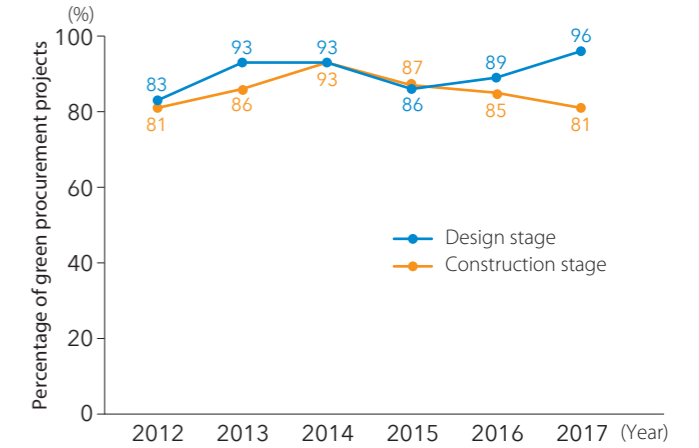
We specify guidelines and items subject to green procurement, and these are utilized in the stages of design and procurement, and also at our construction sites. The generic items and those that have a high environmental impact reduction effect are specified as priority items, and at least nine items must be adopted per project, in principle.

The achievement percentage in the Minimum-Nine Priority Green Procurement Item Project in FY2017 was 95.7 percent in the design stage and 80.6 percent in the construction stage. We plan to enhance green procurement in the construction stage by reflecting design stage procurement information in the construction procurement plan as early as possible.

^{*} The data is based on new construction and renovation projects with a total floor area of 2,000 square meters or larger, and renovation projects valued at one billion yen or more, both of which are designed and constructed by Takenaka.

KPI A rate of projects that utilize priority green procurement items

Target: 85% or more	Result: Design 95.7%, Construction 80.6%
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Measure 7 Create a foundation for the development of a sound, attractive construction industry.

We are putting our efforts into creating foundations that will enable us to grow together with our cooperating companies. Such efforts include adopting the Meister Program, which certifies skilled supervisors and human resources education, through dialogs with Chikuwakai, an association of our cooperating companies. One of our activities in 2017 featured an exchange of opinions session in the Takenaka Nagoya Branch Office between our Takenaka Meisters, who have been certified for their superior skills and management capabilities, and new employees from Chikuwakai member companies. This event provided an opportunity for young employees to look at their future aims as young skilled workers and their satisfaction with the construction industry. Four Takenaka Meisters and 10 new employees were divided into four groups for the discussion. The young participants expressed their appreciation for the opportunity to share meaningful time with other employees beyond the typical boundaries of age and company, making comments such as, "I could find the answers to the worries and questions that I had in my daily work" and "I was able to learn from the stories of when they were young related by Takenaka Meisters and benefit from their helpful advice."



Opinion exchange between Takenaka Meisters and new employees of Chikuwakai companies

KPI Result: 395 Takenaka Meister Certification Persons

Initiatives at group companies

Passing on craftsmanship to the future—Tokyo Asahi Build Corporation

Tokyo Asahi Build Corporation, a reinforcement work specialist, is keen on educating the next generation of human resources. As a part of its human resources education, every year since 2014 the company has been dispatching skilled employees to technical high schools for special classes in which they provide ferroconcrete reinforcement and formwork demonstrations and an experience program for students. The company is directly promoting interest in craftsmanship among the students who will form the next generation, stimulating their curiosity about the construction industry as a future job choice in a fun manner.

Tokyo Asahi Build held its special classes in Kagoshima, Kumamoto, and Kofu in 2017. Participating students made comments such as "This was my first time to experience the program, and it has kindled my interest in craftsmanship!" and "Unlike an ordinary school class, I could see the real work done by craftsmen and their expertise and superior skills really impressed me." This was a program for the second consecutive year in Kagoshima, and it was reported in the local newspaper. We continue to pass on the importance of "manufacturing with a sense of pride" to the next generation, utilizing every opportunity to teach young people.

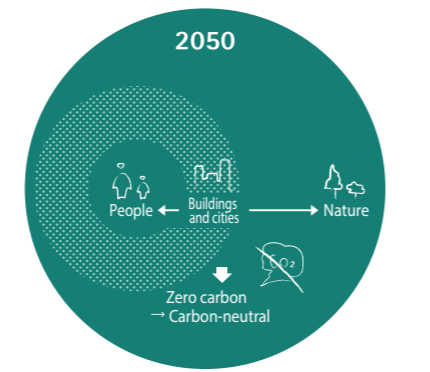


Delivering a class at a technical high school



Response to environmental problems to achieve a low-carbon society

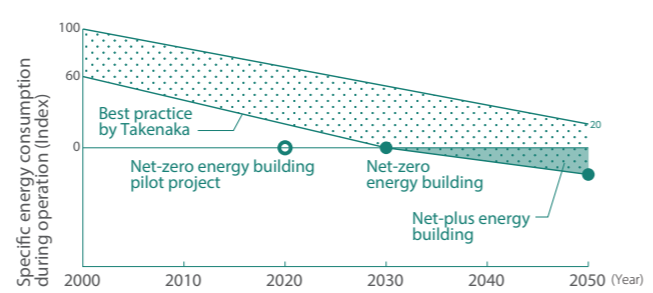
In 2010, we touted our Environmental Concept along with our environmental message, "Connecting People with Nature" in our efforts to realize a carbon-neutral society. We have been working under this message on a range of energy-saving technologies, including implementing energy-saving and energy management measures in buildings and cities, and directing more energy-efficient construction projects, as well as developing technologies that contribute to energy-saving technologies. As a result, we have created a wealth of environmentally friendly architecture. We are also collaborating with national and local governments and academic associations to shift to a low-carbon society through participating in specifying zero-energy building (ZEB) criteria and holding discussions on how to build a low-carbon town. We are now pushing forward our environmental concept, "from zero-carbon buildings to carbon-neutral cities," to make this aim come true.



Environmental Concept
Enhance human sensitivity and creativity, make the best use of nature, and realize our goal of transitioning from net-zero energy buildings to carbon-neutral cities.

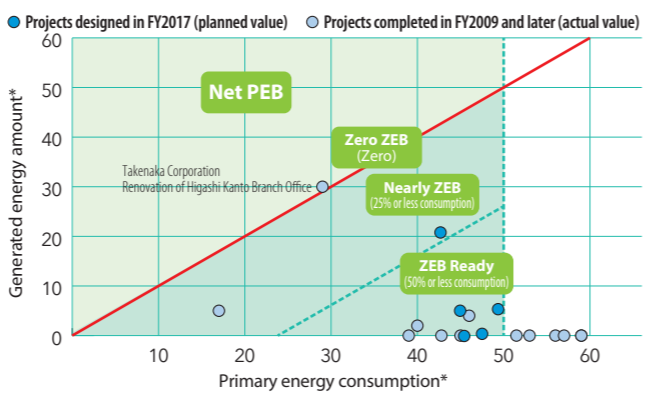
Measure 8 Develop technology for energy savings and creating energy, and apply this to projects as well as promote environmentally conscious designs.

We are expanding the ZEB project*1 to achieve our long-term goal of a low-carbon society, create net-zero energy buildings (ZEBs) by 2020, and establish ZEBs by 2030 (set in 2010). We also aim to reduce CO₂ emissions by 80 percent in buildings overall by 2050. Our Higashi Kanto Branch Office incorporates various environmental technologies through a range of renovations, including exterior changes, utilization of natural lighting and ventilation, direct usage of underground heat and solar heat, and installation of a compact desiccant air-conditioning system designed to transform into a ZEB. The operation records for the Higashi Kanto Branch Office building over the year to April 2017 show that it has been transformed into a ZEB with a positive energy balance (created energy is greater than consumed energy) even before its target date. Now in the second year of operation, we continue collecting data, and are also examining comfort and the effects on intellectual productivity. We have now expanded the number of ZEB projects to five more in FY2017. In terms of building design, we are working toward improving comprehensive environmental performance taking account of factors other than energy conservation. We conduct the self-assessment based on CASBEE² for all our design projects, in principle. Among the FY2017 projects that we were responsible for designing, the ratio of rank S to A projects reached 77.3 percent, achieving the predefined target of 60 percent or more.



Higashi Kanto Branch Office

Map of ZEBs designed and constructed by Takenaka



* Relative value when a reference to building's energy consumption is 100.

*1 The ZEB project: The figures quoted in this article include the following levels of ZEB. ZEB Ready: Energy consumption in the building is less than 50 percent of a standard building; Nearly ZEB: Net energy consumption minus the created energy is less than 25 percent of a standard building; Net ZEB: Energy consumption and energy creation are equal; and Net PEB: Created energy is greater than consumed energy. The number of ZEB projects in the design stage (planned value) is used as the KPI.
*2 CASBEE: Comprehensive Assessment System for Built Environment Efficiency. The five ranks based on the assessment indicators are: S (Superior), A (Very good), B+ (Good), B- (Slightly poor), and C (Poor). We use the projects ranked S and A as the KPI.

KPI Rate of projects assessed as CASBEE S or A rank
Target: 60% **Result: 77.3%**

KPI Number of ZEB projects
Target: 3 **Result: 5**

Measure 9 Promote energy management for buildings and cities.

Development and spread of I.SEM
We have been developing and spreading technologies to optimize energy usage within a single building and across multiple buildings to eliminate wasteful energy use. To this end, we positioned I.SEM, our exclusive energy management system, as the core technology in the Decarbonized Model Town initiative. We are widely promoting I.SEM at external seminars and demonstrations, offering the system in a number of construction projects. As a result, the system was adopted in four construction projects in 2017. In addition to improving I.SEM functions, we plan to expand the scope

of energy management to include a hydrogen utilization system. For this purpose, we started demonstration tests on converting excess generated photovoltaic power into hydrogen, and storing it in fuel cells for use when needed.

[See page 15 for further details.](#)

KPI A number of projects adopting the I.SEM energy management system
Target: 2 **Result: 4**

Initiatives at group companies

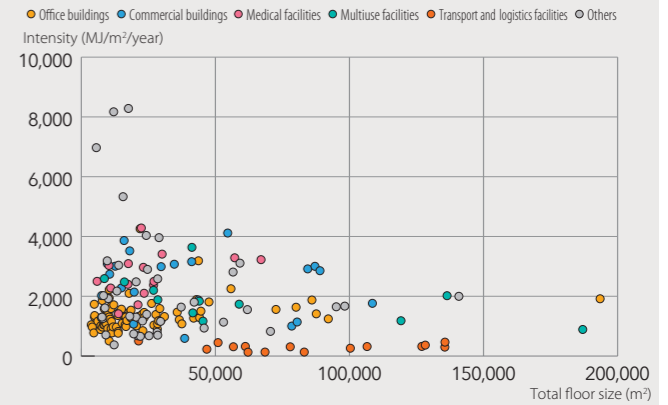
Energy-saving support in building operations—Asahi Facilities Inc. Living Corporation

Based on our business experience accumulated as a building maintenance company over the years, Asahi Facilities Inc. offers energy conservation diagnostics and comprehensive building support utilizing the latest measurement and control technologies. The company collects the energy consumption data, including electricity, gas, and water of the buildings and facilities they manage across Japan, and feeds back the data after categorizing it according to the buildings' usage purposes and size. Next, the data is used to improve equipment operation efficiency within the building, or in plans to renew equipment based on an assessment of aging, relative assessment compared to other buildings, and comparative assessments with market data while taking account of variable factors, such as climate and the building's operational status. In a medical facility, we implemented energy-saving measures, while at the same time improving facility operations by responding to complaints such as "please change the air-conditioner outlet direction as the draft directly hits and chills me," "maintain an appropriate temperature taking account of users' health," and about condensation, etc. Through fine tuning facility operations based on the data analysis and quick responses to users' comments, Asahi Facilities managed to achieve an improvement in customer satisfaction and attain its energy saving targets at the same time. Such an initiative is being shared across

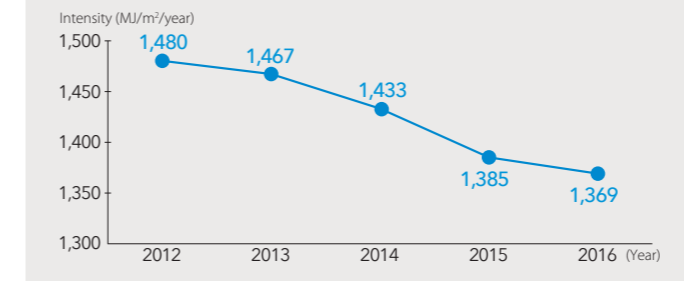
the company in order to offer our customers the best and most advanced energy-saving proposals of the highest standard. The company's constant energy-saving efforts carried out together with customers constantly lowers its energy consumption intensity³ (average value) every year.

³ Energy consumption intensity: The value obtained by dividing the value of all energy consumption in a building over a year by the floor area size (Unit: MJ/m²/year).

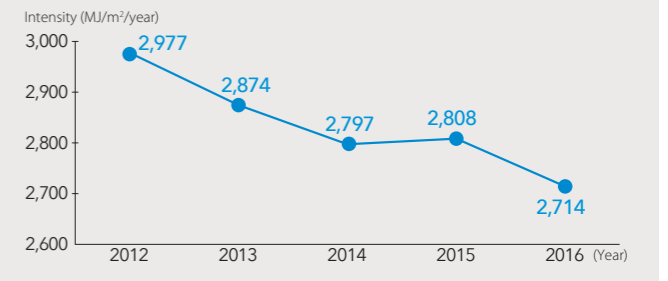
Energy consumption intensity of buildings (2016)



Changes in energy consumption intensity in office buildings



Changes in energy consumption intensity in medical facilities



Measure 10 Identify and reduce CO₂ emissions from the entire supply chain (Scope 1, 2, and 3 emissions).

We are working to expand our environmental impact reduction initiative beyond our own business, and toward the entire supply chain. In 2017, we gathered summarized data of Scope 1, 2, and 3 emissions of greenhouse gases to determine future direction. We plan to reduce CO₂ emissions derived from materials, which form much of indirect emissions, by spreading the use of ECM (Energy & CO₂ Minimum) Cement (patented). We are also

addressing CO₂ emissions derived from building maintenance energy by further expanding the number of ZEB projects.

KPI **Result: Understood outlines of Scope 1, 2, & 3 and decided management policies**



Promotion of social contribution activities

Under the slogan “With the local communities,” we undertake group-wide activities that help local communities resolve issues, and we encourage future development with our overseas affiliates. Offering such help forms part of the company’s actual targets and contributes to training human resources that will form the next generation of employees. In 2017, the company displayed a promotional poster across the entire company to raise awareness among all employees. The following articles provide examples of some of the activities undertaken in our individual companies all over the world.

Measure 11 Promote community exchanges and solving local problems through nonbusiness activities such as dissemination of knowledge and technology, social contribution activities, and passing down and disseminating architectural culture.

Offering hands-on workshops to local communities
We offer hands-on workshops and workplace experience programs for children, students, and teachers at our Practical Technology Training Center (“Omoi”) in Kawanishi City, Hyogo Prefecture; at the Takenaka Research & Development Institute in Inzai City, Chiba Prefecture; and at other construction project offices across Japan. Such a rich experience of craftsmanship provides educational opportunities to develop young engineers by promoting interest in our industry. Volunteers among our employees also offer the Naniwa Demae Juku, through which they visit schools to provide hands-on workshops on the theme of architecture, as well as making personal contributions in different parts of Japan utilizing their craftsmanship expertise, knowledge, and technology.



Students learning construction management (Redevelopment of the Suzurandai Station front area, Kobe City)

the Paralympics in Tokyo to cheer on the athletes.” We will continue making the best of opportunities like this to promote understanding of parasports and further our communications with local communities.



Sitting volleyball class

Support for public interest incorporated foundations
We give support to the activities of the following three local community interaction foundations to connect the past, present, and future by promoting culture, art, and education: Takenaka Carpentry Tools Museum (to pass down traditional technologies and skills to present and future generations); Gallery A Quad (to convey information about contemporary architectural culture to society); and Takenaka Ikuikai (to develop personnel who will lead society in the future).



“IRAKA A Millennium of Tile Roofing,” Takenaka Carpentry Tools Museum (Kobe City)



Exhibition of *The Little House* by Virginia Lee Burton, hosted by Takenaka Ikuikai and supported by Gallery A Quad

Participating in the 10th Koto-ku Environmental Fair
In the Koto-ku Environmental Fair hosted by Koto-ku, Tokyo, we jointly hosted “Wood Education Square” together with HASEMAN, NEC, and Fujikura Ltd., all of which have a main office in the city. We organized a workshop for children called “Let’s Carve Wood.” The workshop, led by Mr. Akinori Abo, Japan’s representative wood-planing expert, enjoyed great success with more than 150 children and their parents attending. We will continue participating in community events to build ever-closer bonds with local people.



Planing with an expert

Delivering a sitting volleyball class
In response to a request from the Japan Para-Volleyball Association (Chairman: Mr. Yoshihisa Mano), we delivered a class to promote understanding of sitting volleyball (a type of parasport) and disabled athletes. The volleyball class was given to 107 fourth-grade children of Chiba City Kaihin-Utase Elementary School to provide instructions on how to play the sport and then experience playing the actual game. The school principal welcomed the class with the comment: “This is a good opportunity to learn that sitting volleyball is a sport that can be enjoyed by everyone, whether disabled or not.” The children proclaimed, “We would definitely like to go to

Preservation and utilization of Chochikukyo
In 2016, we acquired Chochikukyo (Oyamazaki-cho, Kyoto Prefecture). We preserve the premises while making it accessible to people by holding a variety of events there. We will pass this house down to later generations, working closely with the local community in order to disseminate the appreciation of Japanese architectural culture. The entire premises were designated as a National Important Cultural Property in July 2017.



Chochikukyo

KPI Number of community contribution programs

Target: 110 Result: 197

Initiatives by overseas affiliates

Tree planting to protect coastal ecosystems—Thai Takenaka International Ltd.

Thai Takenaka International Ltd. is an overseas affiliate of Takenaka Corporation. In July 2017, under the theme of “awareness raising and contribution to protection of the natural environment,” the company engaged in tree planting and activities to protect and cultivate coral and other marine life threatened by coastal development. Thai Takenaka holds an annual excursion to help address particular local issues, in which employees’ family members are also invited. The company has been involved in various social contribution activities, such as mangrove planting and repairing the aging buildings at an elementary school. The CSR team commented: “We decide what kind of social contribution activity we will engage in every year after thorough discussions taking into account the characteristics of Thai Takenaka’s business.” We will continue proactively participating in social contribution activities in the future.



Enjoying participating in activities



Development of industrial and social infrastructure through technical innovation

We continue working to develop cutting-edge technology related to construction and production innovation by fusing state-of-the-art technologies with an awareness of the environment, safety and security, and craftsmanship, as demanded by today’s society.

Measure 12 Establish, disseminate, and apply technologies for urban and architectural development to address social issues such as the environment as well as disaster prevention and reduction.

Since the occurrence of the Great East Japan Earthquake, we have been developing technologies to protect people’s lives from complex disasters, such as a combined earthquake and tsunami. MaXim, which we developed in 2017, is a Virtual Reality (VR) system that loads the data of a series of disasters into the BIM data of a building in order to simulate what could happen to it in a real disaster and how people could escape from the structure. The system enables development of a concrete disaster prevention plan that is specific to a particular building. To expand such VR simulation to the level of

a city block, we decided to build “support technology for a District Continuity Plan (DCP) in a smart community” over the coming three years. We also commenced development of an infrastructural technology to realize safe and secure urban architecture, technology to build lifelines to ensure self-sustainability during an emergency, and monitoring simulation technology that covers postdisaster situations.

KPI—
Result: Developed technology related to urban and architectural creation

* A promotional video of maXim is available at: <https://www.youtube.com/user/takenakacorp>

Measure 13 Popularize wooden structures and buildings and promote the utilization of domestic timber to preserve forests and revitalize the forestry industry.

We are engaged in realizing a decarbonized society through increasing the number of buildings made of wooden and wood-based materials, which are recyclable resources. In 2017, we developed cypress-based Moen-Wood and expanded usage of cross-laminated timber (CLT). We are also enhancing usage of domestically produced timber by utilizing more timber for both interior and exterior use in five new projects, including in the Takenaka Training Center (Takumi). Further, our Moen-Wood has

newly acquired certification as fire-resistant for up to two hours. We will now continue to increase wood usage.

[See page 29 for further details.](#)

KPI Expanding the number of wooden structures and building projects

Result: 5 projects

Measure 14 Improve productivity through innovation to cope with the immediate labor shortage in the construction industry.

To approach the falling number of construction workers and increasing construction demand, we are improving productivity by efficiency enhancement in management and production. In 2017, we employed hardware-based automation by increasing usage of PCs and modular construction methods. We also increased efficiency in the software (management) field by expanding the scope of application of robot technology and IoT. In terms of IoT utilization, we provided mobile devices with a specific application to core workers on construction sites in order to improve



Large panel handling robot, “Giraffe”

the efficiency of work procedures and management. These devices enable staff to share drawings, clarify work instructions, and prevent human error and rework deriving from miscommunications. The results in management and work efficiency improvement have been visible. We will make further efforts in both hardware and software improvement toward ensuring a better WLB, which is an ongoing welfare subject for us.

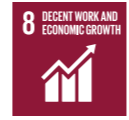
KPI Labor Productivity Index^{*1}

Target: 2% improvement (over 2015 level) Result: 2.14% improvement (over 2015 level)

*1 Our own indicator, obtained by converting the total actual labor hours into an index against the total of standard labor hours between 2015 and 2017, which is based on a regression formula obtained from the labor hours and the value of finished work per building type undertaken between 2014 and 2016 (2015 standard).

Sustainable Growth

We are working to create a safe and comfortable workplace environment, where employees are motivated and visionary, and diverse personalities and individuality are respected. To this end, we share an understanding of issues and collaborate on resolving them through close communication with employees and cooperating companies.



Realization of healthy and rewarding workplace environments

Our vision is to foster a corporate culture in which employees can maintain a good physical and mental state in their work. We aim to build healthy and rewarding workplace environments that develop the skills of each employee, which in turn contribute to productivity enhancements.

Measure 15 Improve productivity drastically (also in office work), and enhance work-life balance through productivity improvement.

We are striving to improve productivity drastically to enhance a work-life balance for employees.

See page 19 for further details.

KPI Result: Decided the ideal work-life balance and promotional measures (outline)

Measure 16 Provide opportunities such as new employee training to enhance employee growth and training for managers to support them.

We offer new employees one-year training courses, in which they live in our training dormitory, have exchange meetings with management and OJT programs in different departments. These form part of our training system to nurture employees who are sincere individuals and who possess wide-ranging knowledge and are ready to inherit Takenaka's traditional spirit. From the second year onwards, we continue to provide systematic capability development training organized according to the needs of our business management strategies and educational requirements. In 2017, we provided training on job allocation and human

resources development to some 500 line leaders as a part of our new personnel system introduction training, which is associated with the reorganization of our new employee system and changes in our reemployment system. We remain focused on enhancing our employees' abilities by providing education and support for managers to help their employees.

KPI Result: Organized problems and examined measures

Measure 17 Ensure safe, hygienic on-site work environments.

In addition to fully observing the Industrial Safety and Health Act, since 2000 we have been utilizing an Occupational Health and Safety Management System (OHSMS). Together with cooperating companies, we follow the cycle of Plan, Do, Check, and Act (PDCA cycle) in our safety and health management. This is our effort to realize a safe and comfortable working environment for the employees of Takenaka and cooperating companies, and to support workers' health improvement.

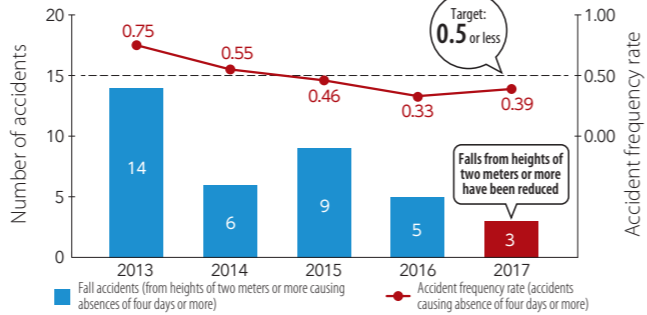
Eliminating occupational accidents

Construction project sites inevitably hold many potential dangers that can lead to occupational accidents. We have implemented an OHSMS to assess the risks and adopt the necessary countermeasures at our main offices, branches, and construction project offices. In 2014, we made preventing falls our highest priority management objective, as falling accidents often involve serious injuries. To date, we have provided training programs on how to use double-hook safety harness lanyards correctly, introduced a penalty system for not using safety harness lanyards, and encouraged "pointing and calling-out" safety practices. In 2017 we made wearing a full-body safety harness mandatory for specific types of workers (e.g., steel frame workers), who work at heights of over five meters without a platform. Our efforts have reduced the number of falls from heights of two meters or more.

The accident frequency rate in 2017 achieved 0.39, which was better than our target figure.



Special inspection by President Miyashita



KPI Accident frequency rate (accidents followed by absence of four days or more from work)
Target: 0.5 or less Result: 0.39

Measure 18 Promote health and productivity management that improves physical and mental health.

We have been managing employees' health based on regular health checks and stress diagnoses. In 2017, we analyzed the results of the feedback from the health and productivity management survey, and we used the analysis results to improve the current system. As well as health, we also conducted surveys of the environment and activities in our offices in collaboration with Chiba University's Center for Preventive Medical Sciences. With a view to obtaining "WELL Certification," we plan to conduct this survey regularly to clarify the relationship between health and the office environment,

along with behavioral patterns in offices, and use the results to create an office environment and working styles that enable people to work in a healthy manner.

KPI Result: Organized problems and examined measures



Promotion of diversity

With the watchwords of "dialog" and "take responsibility," we aim to create a working environment in which individuals can exert their abilities to the fullest extent according to their personalities in a diverse manner. As our first step to raising diversity awareness, we have started expanding opportunities for women.

Measure 19 Expand opportunities for active involvement of women.

We are implementing a range of initiatives toward the target of 4.5 percent for the rate of women in managerial positions by 2020. We regularly host awareness-raising programs, including management dialogs, to provide opportunities to look at diversity from a managerial viewpoint, and our line leader diversity training program is designed to give managers practical methods to support career progress and improve their management skills through case studies focusing on job continuation and career support for women. The training program for women who have been selected to take

leading roles in the workplace has now reached its fourth term. The 2017 program was open to female managerial candidates who had studied the training programs in terms one to three to further their management skills. We also participate in the Komachi construction work team project hosted by the Japan Federation of Construction Contractors. Being a part of a team helps improve the working environment for women and expands working opportunities for women on construction sites. We were awarded the 2015 Diversity Management Selection 100 by the Ministry of Economy, Trade and Industry in recognition of our efforts. Also, in the Program to Recognize Companies Promoting Equality and Balance 2017—presented by the Ministry of Health, Labour and Welfare—we received the Excellence Prize of the Minister of Health, Labour and Welfare under the category of Equal Opportunity Promoting Company, the first time this had been achieved by a construction company.



The Komachi construction work team members in action

KPI Rate of women in managerial positions
Target: 3.2% Result: 3.2%

Measure 20 Secure employment opportunities for older persons.

We are now introducing our reemployment system so that older persons can work in a wider range of positions. In June 2017, we held a number of meetings to explain and discuss our reemployment system, and from April 2018, we will commence reviewing reemployment treatment, concluding multiple-year contracts, and introducing the Expectation (Role, Position, & Issues) Confirmation Sheet, which clarifies the expectations supervisors have of reemployed workers. We have also started to offer a support

program for reemployment applicants to review their careers and identify the knowledge and skills they possess. With a target of an 80 percent conclusion rate for reemployment contracts in the first year, we are promoting measures for our new reemployment system.

KPI Result: Established targets

Initiatives by overseas affiliates

Diverse cultural exchange and passing along Takenaka corporate culture through short-term local employee training program

Since 1997, we have offered a short-term training program for overseas employees. This program aims at the career and skill development for local employees, as well as encouraging them to deepen their understanding of quality management through learning about Japanese architecture and culture. We have welcomed 193 people from more than 30 countries to date who have experienced a variety of programs, including lectures, construction project office tours, opinion exchange sessions, and building visits in Tokyo. The multicultural viewpoints they acquired from this program are then utilized in each of their own countries.



Program participants enjoy a construction project office tour

Fair Corporate Activities



Based on our corporate philosophy, we practice "Total Quality Management" in order to obtain the satisfaction of our customers and earn the trust of society. Together with raising our value to society as a corporation, we will fulfill our social responsibilities.

Measure 21 Continuously reinforce internal controls.

Based on the basic policy for internal control, we have developed a corporate organizational framework and implemented awareness-building and training, promoted CSR activities and compliance, introduced disaster prevention activities to respond appropriately when risks are high, and promoted crisis management to be conducted under ordinary circumstances. Each of our group companies formulates its own corporate code of conduct that complies with our own to ensure optimal maintenance of the management organization.

KPI
Result: Corporate Code of Conduct reviewed by all group employees

Takenaka Corporate Code of Conduct

- Article 1 Acquiring the Satisfaction of Customers and the Trust of Society
- Article 2 Compliance with laws and social norms
- Article 3 Disclosure and protection of information
- Article 4 Respect for human rights and improvement of the working environment
- Article 5 Contribution to global environment
- Article 6 Contribution to society
- Article 7 Prevention of relations with any antisocial forces or organizations
- Article 8 Respect for international norms and contributions to each country and region
- Article 9 Implementation system, and education and enlightenment
- Article 10 Action against violations

Measure 22 Promote compliance.

Establishment of framework for CSR and compliance, and implementation of awareness development activities

We established the CSR Promotion Council headed by an executive officer responsible for CSR promotion as a central organization for CSR. We also organized a compliance committee headed by the executive officer in charge of compliance under the Council as well as CSR and compliance committees for each of our branches. Furthermore, we have a CSR Promotion Department within the Head Office and have appointed CSR and compliance facilitators, CSR and compliance leaders, compliance managers, and compliance (sub) leaders at each site of the Takenaka Group, who are tasked with promoting education and raising awareness on compliance. In addition, we have established multiple consultation and reporting contacts for employees in Takenaka as well as in other group companies and cooperating companies. Specific training and awareness development for CSR and compliance include the "CSR and Compliance News," a publication dealing with CSR and compliance issues inside and outside the company. It has been published roughly once a month since 2009 and distributed to all employees. In the Takenaka Group CSR and Compliance Month held every November, the following are organized throughout the group, including overseas offices: a message from top management, CSR Officer Seminars involving outside lecturers, CSR compliance meetings that engage employees in deliberations in their respective workplaces, promotion of awareness of various counseling and whistleblowing programs, and an "e-quiz" featuring questions on the CSR and Compliance News and the Corporate Code of Conduct.

Each group company also holds its own independent programs for Fair Construction Transactions Promotion Month and organizes harassment prevention seminars.

Activities of this kind will be repeated and implemented by all the companies in our corporate group and throughout our network of cooperating companies to deepen knowledge and awareness of CSR and compliance, and the reach of these activities will be extended.



CSR compliance meeting

Continuing to conduct activities to support observation of the Construction Business Act

We are making ongoing efforts to ensure that our employees are aware of changes and administrative trends in relevant laws and ordinances to ensure that corporate activities are conducted properly and legally. In 2017, the Guidelines for Compliance with the Construction Business Act were revised by the Ministry of Land, Infrastructure, Transport and Tourism. As an industry leader, we responded by launching a new companywide initiative to encourage all our business partners to enroll in social insurance programs. In association with the Fair Construction Transactions Promotion Month (November) designated by the Japanese government, we took time to confirm that the Construction Business Act is observed in our company and that appropriate guidance is given to cooperating companies, with a view to ensuring fair business practices on a companywide basis.

Activities to achieve fair procurement and continuous measures against antisocial forces

To fulfill our CSR, we have formulated a procurement policy and activity guidelines, based on which we are working with our business partners



Copies of "CSR and Compliance News"

to promote procurement that responds to the needs of society and our customers. We are thus conducting procurement activities in line with clear principles. We explain these principles to business partners at meetings of the occupational health and safety association and of Chikuwakai, an organization composed of subcontractors, and ask these partners to take specific actions based on the principles. With regard to antisocial forces, we have traditionally concluded memoranda on provisions for exclusion of criminal syndicates with all our business partners. We also share information widely with our partners for the dissemination of related information to ensure that we have no relationships with any antisocial forces.

KPI Number of serious noncompliance cases
Target: 0 **Result: 0**



Explaining procurement policy and activity guidelines at a general meeting of the Chikuwakai

Measure 23 Ensure information security.

We are implementing information security measures to protect the important information assets of our clients. Given the growing threat of cyber attacks in recent years, we have stepped up our efforts to educate all our employees, including those outside Japan, and raise their awareness of information security to prevent data breaches resulting from cyber attacks and hacking, through e-learning programs and exercises to cope with targeted e-mail attacks. Our system to minimize damage caused by computer viruses through early detection has been named Takenaka-SIRT (Security Incident Response Team), and it is being strengthened through coordination with outside organizations, responses from group companies, etc. Efforts to strengthen information security will continue based on the seven pillars of information security.



KPI Number of data breach incidents
Target: 0 **Result: 0**

Measure 24 Develop and reinforce disaster response systems.

We have established a business continuity plan (BCP) for preparedness against earthquakes anticipated in the near future, and have set up a disaster measures headquarters to confirm the safety of employees and their families and to confirm and repair damage to construction project offices, company facilities and buildings that we have constructed for our customers. In 2017, natural disaster simulation drills focusing on the initial response to a large-scale earthquake were conducted in June and July for disaster measures headquarters members at our Hokkaido Branch Office, Tokyo Main Office, Higashi Kanto Branch Office, Nagoya Branch Office, Shizuoka Regional Branch Office, Osaka Main Office and Kyoto Branch Office. On September 26, an earthquake disaster action drill coordinating the Main Offices with seven branch offices from Hokkaido to Kyushu and taking into account the different local characteristics was organized to promote a stronger awareness of these drills among employees. On November 13, joint disaster measures training was organized chiefly to assess the disaster simulation drill and the earthquake disaster action drill, and to examine and verify the effectiveness of the companywide mutual cooperation system. These drills were participated in by some 12,000 employees, including those from 17 group companies, and became a prime opportunity to increase solidarity throughout the group. We will continue to conduct drills for serious disasters and improve our BCP to increase our emergency preparedness.



Earthquake disaster action drill (power generation action drill)



Joint disaster measures training

KPI
Result: Implemented joint earthquake disaster drills and reviewed coordination systems

Achievement of Targets Through Partnerships



Dialogs with various stakeholders are being organized to stimulate creation of a sustainable society. Outside experts prominent in various fields are invited to discussions on themes related to stakeholders that we are particularly closely linked to, aimed at solving issues.

Measure 25 Deepen the understanding of social issues through stakeholder dialog and promote the resolution of these issues through business and nonbusiness activities.

In the face of the growing interest and importance of supply chain management, including the publication of ISO 20400 guidelines and activities directed toward work-style reform that are growing in Japan, we held dialogs on the themes of “sustainable procurement” and “improvements in work-life balance” with stakeholders.

Supply chain management (cooperating companies)
Mr. Hidemi Tomita, a top authority in his field, was invited to speak on the latest developments in sustainable procurement (CSR procurement) and for an exchange of views with our executive officers. We will continue to build sustainable partnerships with our business partners by systematizing and organizing our issues.

Work-life balance (employees)
Dialogs on improving work-life balance were held on 22 occasions in various departments to develop an ideal work-life balance and 11 promotional measures. We will implement activities to achieve these goals.



Exchange of opinions on sustainable procurement

KPI Organize stakeholder dialog meetings and develop measures based on outcomes of the dialog

Target: 2 or more **Result: Dialog 2/Proposal 1**

See page 19 for further details.

Corporate Governance

We are working to develop a corporate governance organization and effective management of the system through activities aimed at improving the quality of our overall corporate activities to satisfy the demands of our customers, earn the trust of society at large, and raise our social value.

Organizational governance

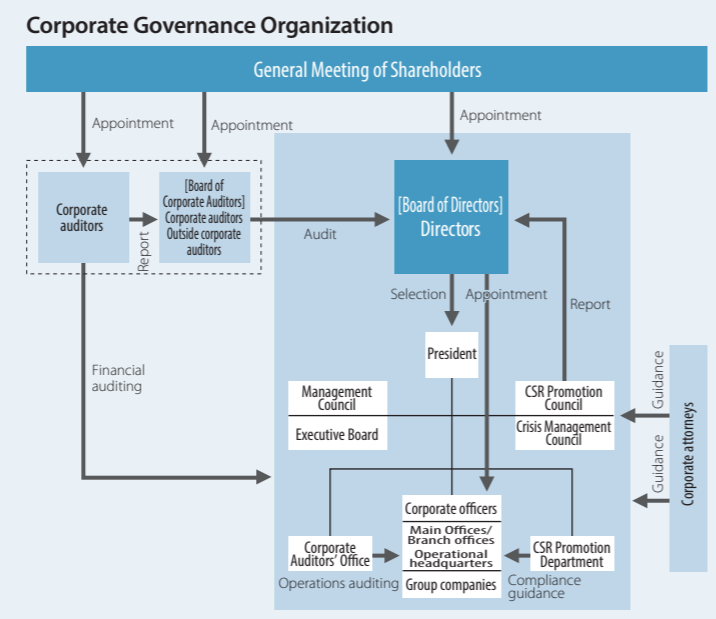
—Improving management quality and confirming governance for rapid, accurate decision making

System of Board of Directors and Corporate Officers (basic concept)

The board of directors meets once a month or more often as needed in its capacity as a supervisory body for decisions concerning corporate management and business administration. The corporate officer system was also adopted in 2010 to accelerate the management decision-making process and enhance business administration and supervisory functions.

Board of Corporate Auditors and Corporate Auditors' Office

The Board of Corporate Auditors, which consists of four corporate auditors including two outside corporate auditors, audits the execution of duties by the directors, including attendance at Board of Directors meetings. In addition, the board is subject to fair, unbiased auditing by an accounting and auditing firm acting as an independent auditor. We have also established a Corporate Auditor's Office as an internal auditing organization to verify the accuracy and justifiability of the state of the company's operational, accounting, and financial activities.



Expectations for Urban Creation That Attracts Support and the Creation of Shared Values Unique to Takenaka



Takashi Nawa
Adjunct Professor, International Corporate Strategy, Hitotsubashi University

Born in 1957 in Kumamoto Prefecture. Bachelor of Arts in Law and Political Science from the University of Tokyo and MBA from Harvard Business School (as a Baker Scholar). Work experience of roughly 10 years in the industrial plants and infrastructure sectors at Mitsubishi Corporation. Approximately 20 years of consulting experience as a director at McKinsey & Company until 2010. He has been involved in a wide range of projects, including next-generation growth strategy planning and companywide restructuring in numerous industries in Japan, other Asian nations, the United States, etc. He has been in his current position since June 2010. His books include *CSV Management Strategy* and *Principles of Growth Businesses: Theory on 21st Century Business Management Observed in 100 Top Global Businesses*.

Shift from “dreams Takenaka wishes to fulfill” to “dreams that are shared”

The growth strategy for 2025 focused on “cities” describes the value that Takenaka Corporation can offer society. Takenaka perceives structures and systems as an integral whole and includes the time element of the urban life cycle. The effort not to end with completed structures but with structures that move forward and evolve over the course of time is a direction suited to contemporary needs, stimulating greater expectations for the Takenaka style of urban creation. Awareness of “cities” as a collective body necessitates attention given to people—the people who work in them and the people who live in them. What is important from this perspective is not only convenience but also the presence of the human touch. The cities that reflect Takenaka Corporation’s commitment to wood textures and to interaction with nature focusing on interactions between people are thus certain to lead to the creation of a new and distinctive “work and life environment.”

However, I believe that a common understanding of the style or uniqueness that underlies Takenaka’s philosophy should be presented more broadly in the growth strategy to gain support and empathy from a wider base in society. It may be, for instance, a scenario leading to an understanding of what it means to work and live within the works created by Takenaka, or “ambiance with human warmth” that suggests “harmony as a whole,” which thrives in traditional Japanese values.

I believe that a broad understanding and more explicit presentation of the internally communicated values that exist as a tacit understanding of “what is uniquely Takenaka” are vital in leading to the next step forward.

If Takenaka is able to communicate what is understood to be uniquely Takenaka—the core of Takenaka values—it is certain to influence a large number of people. If this is achieved, the number of people believing in its values and wishing to support and participate will increase, drawing a lot more “likes.” I believe that this will lead to dramatic improvements in the value of the brand, which is an intangible asset.

To achieve this, it is important to examine the process of sharing values. It may be interesting, for example, to create a scheme that allows people to participate in urban creation. Actual participation by residents or experiencing the sense of participation are certain to boost greater awareness and loyalty to their own city.

The “-ing” approach to continuing evolution

I believe that evolution perspectives should be integrated more into the timeline. If a building at its completion is regarded as Version 1, evolution perspectives should be added to stir expectations over what Version 2 or Version 3 will be like. Cities are alive and dynamic. There will be changes in people and in society. Nothing is permanent, and everything must evolve or disappear. It may be necessary to add expressions suggesting that buildings evolve together within the cities and describe such images over time.

The buildings created by Takenaka Corporation are founded on its belief in “works,” which is a perfectionist approach. This, however, may suggest that something that is perfect does not evolve further. Although it may be a serious challenge to push for evolution in what is perfect, I believe that the approach of continuing evolution (-ing approach) founded on the idea of “perfection in the moment” is important.

The 25 measures identified under the Group Growth Strategy are correct and comprehensive. However, I also see room to integrate more of Takenaka’s own KPIs into them. Qualitative approaches such as “meticulousness” or “dreams” may be difficult to express quantitatively. However, the process of examining what are the approximate values will itself lead to the creation of new KPIs.

I hope that Takenaka Corporation will continue to present its narrative on urban creation rooted in the lives of people, and from this concept, I look forward to seeing more KPIs that are filled with Takenaka’s dreams and to the “Service of Happiness” envisioned in its continuing evolution.

Income Statement and Balance Sheet (Consolidated)

(Millions of yen)

	76th term 2013	77th term 2014	78th term 2015	79th term 2016	80th term 2017
Orders received	1,214,335	1,418,103	1,295,029	1,291,682	1,391,442
Revenues	1,020,956	1,150,663	1,284,362	1,216,570	1,295,951
Operating income	11,525	27,741	59,883	91,367	107,988
Operating margin (%)	1.1	2.4	4.7	7.5	8.3
Ordinary income	21,709	38,367	68,666	93,572	115,304
Net income	7,162	23,545	44,140	61,432	75,762
Net assets	438,468	471,436	521,011	566,470	652,033
Total assets	1,105,029	1,240,256	1,342,971	1,318,055	1,450,191

Other Financial Data (Consolidated)

(Millions of yen)

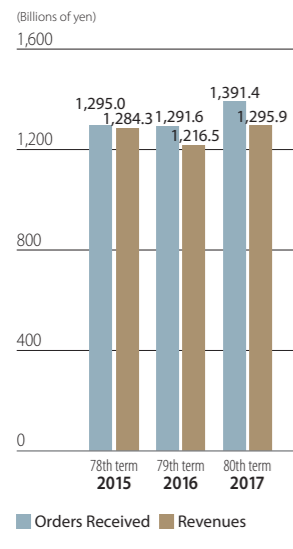
	76th term 2013	77th term 2014	78th term 2015	79th term 2016	80th term 2017
Cash flow from operating activities	△929	14,674	40,032	87,883	88,476
Cash flow from investing activities	△18,646	△5,207	△20,119	△48,695	△42,847
Cash flow from financing activities	8,294	12,984	2,415	△147	△14,235
Research and development expenses (Billions of yen)	5.5	5.7	6.2	7.0	7.7
Capital investment (Billions of yen)	26.3	27.2	25.3	62.3	56.5
Return on equity (ROE) (%)	1.8	5.2	9.0	11.4	12.6

Revenues by Business (Consolidated)

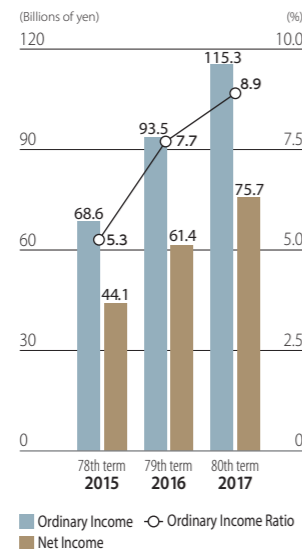
(Millions of yen)

	76th term 2013	77th term 2014	78th term 2015	79th term 2016	80th term 2017
Construction business	939,100	1,063,666	1,188,308	1,104,999	1,193,475
Development business	45,929	48,287	46,743	59,868	49,653
Others	35,926	38,709	49,309	51,703	52,822

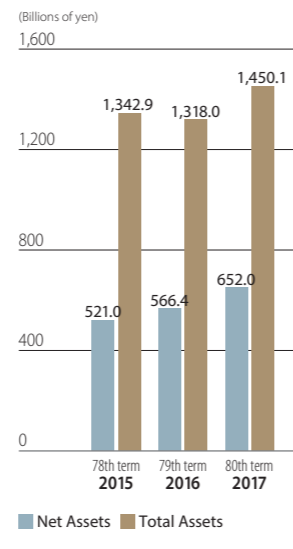
Orders Received/Revenues (Consolidated)



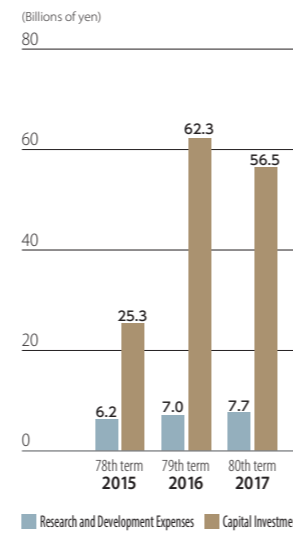
Ordinary Income/Ordinary Income Ratio/Net Income (Consolidated)



Net Assets/Total Assets (Consolidated)



Research and Development Expenses/Capital Investment (Consolidated)



Revenues by Region (Consolidated)

(Millions of yen)

	76th term 2013	77th term 2014	78th term 2015	79th term 2016	80th term 2017
Japan	872,155	960,443	1,090,954	1,043,880	1,128,429
Asia	90,399	129,903	134,923	117,939	91,847
Europe	25,260	33,308	27,783	26,114	46,353
North America	23,289	25,921	30,701	28,636	29,320
Others	9,851	1,086	—	—	—

Nonfinancial Data (Nonconsolidated)

	76th term 2013	77th term 2014	78th term 2015	79th term 2016	80th term 2017
Number of employees (Consolidated)	7,049 (11,941)	7,133 (12,187)	7,195 (12,328)	7,307 (12,592)	7,400 (12,982)
Average age of employees	44.5	44.7	44.4	44.3	44.0
Average length of continuous employment (Years)	19.5	20.2	19.8	19.6	19.2
Number of women in managerial positions	53	68	78	86	100
Accident frequency rate (Accidents followed by absence of four days or more from work)*1	0.75	0.55	0.47	0.33	0.41
CO ₂ emissions intensity during construction work (t/100 million yen)*2	10.3	10.8	10.6	10.5	10.0
Rate of final disposal of construction waste (Wt. %)*3	3.9	3.2	2.7	2.7	2.3
Rate of number of CASBEE S- and A-rank projects (%)*4	69.0	61.2	52.0	67.1	77.3

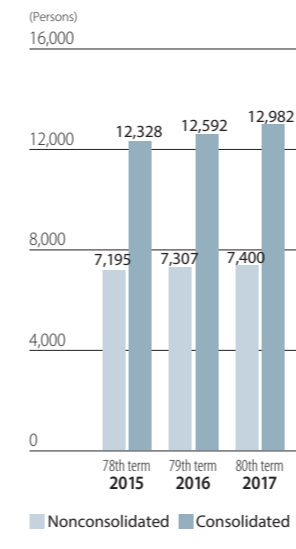
*1 Percentage of the number of occupational injuries caused by industrial accidents accompanied by an absence of four days or more from work for every million man hours of labor

*2 Per value of completed work

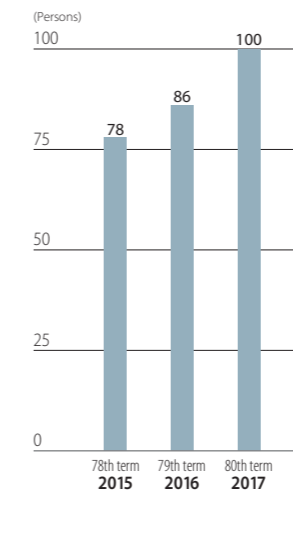
*3 Does not include construction sludge and specially controlled industrial waste.

*4 Total number of S- and A-rank projects among the company's design projects. The number for 2014 was revised.

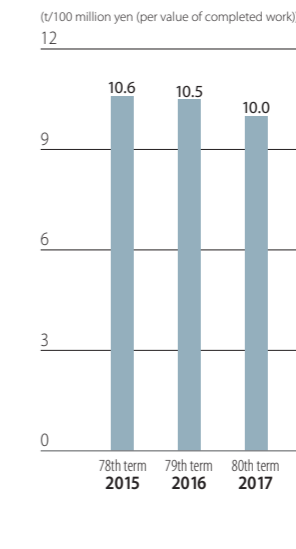
Number of Employees (Nonconsolidated and Consolidated)



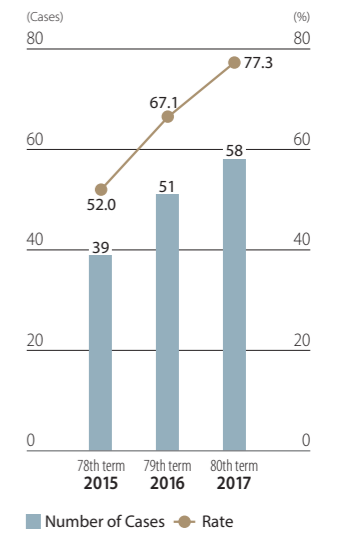
Number of Women in Managerial Positions (Nonconsolidated)



CO₂ Emissions Intensity During Construction Work (Nonconsolidated)



Number of CASBEE S- and A-Rank Projects/Rate (Nonconsolidated)



Dreams into Reality for a Sustainable Future



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