

Financial Summary

Financial Highlights (consolidated)



- Orders received increased by 4.6 billion yen (6.2%) YoY due to the receipt of several large orders and the reduced impact from the COVID-19 pandemic on sales activities, compared to the previous fiscal year.
- Net sales increased by 2.3 billion yen (3.3%) YoY, benefitting from steady progress on orders received in the current fiscal year, in addition to orders carried over from the previous fiscal year.
- The substantial growth in profits resulted from improved construction efficiency and cost reduction measures on some large construction projects.

(Billion yen)

			FYE Mar. 2022						
	FYE Mar. 2020 Actual	FYE Mar. 2021 Actual (1)	Initial*1 Forecast (Business Plan) (2)	*2 Revised Forecast 1	Revised Forecast 2 (3)	Actual Results (4)	YoY (4) - (1)	Vs Initial Forecast (vs. Business Plan) (4) - (2)	Vs. Revised Forecast (4) - (3)
Orders received	78.4	74.3	77.5	77.5	77.5	78.9	+4.6 (+6.2%)	+1.4	+1.4
Net sales	75.8	73.1	77.0	77.0	77.0	75.4	+2.3 (+3.3%)	-1.6	-1.6
Operating profit	3.6	3.9	4.0	4.5	5.0	5.6	+1.6 (+41.7%)	+1.6	+0.6
Ordinary profit	4.2	4.5	4.5	5.0	5.5	6.1	+1.5 (+34.1%)	+1.6	+0.6
Profit attributable to owners of parent	3.5	3.0	3.0	3.5	4.0	4.3	+1.2 (+42.2%)	+1.3	+0.3
ROE	6.1%	5.2%				7.1%	*1 Announced or *2 Announced or		

² Announced on Nov. 5, 2021

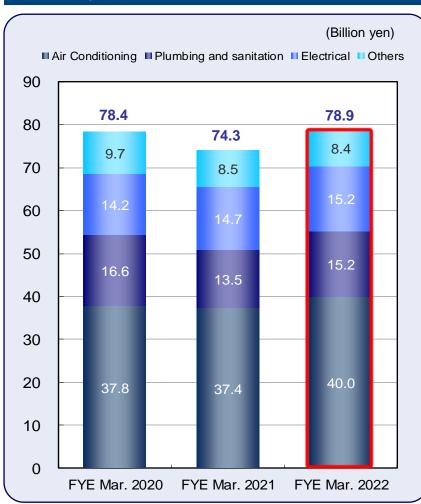
^{*3} Announced on Feb. 3, 2022

Orders Received by Category & by Customer (consolidated)

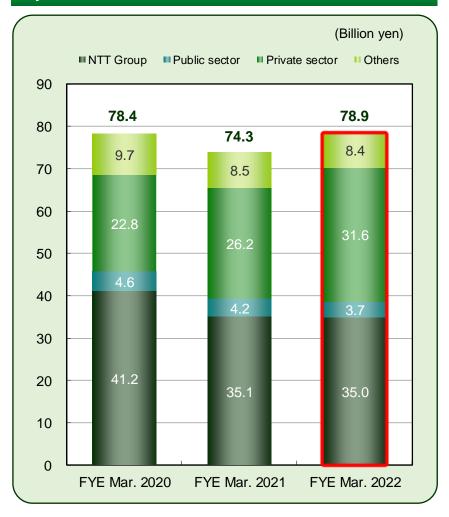


■ New large building construction projects in the private sector increased.

By category



By customer



Orders Received by Priority Domains (non-consolidated)



[Priority domains]

Data centers/Information

- Received orders for construction needed on new project orders from the previous fiscal year
- Demand continued to expand from increased use of cloud services, etc.

Office buildings

Demand was strong for both new building construction and renovation.

Manufacturing/Distribution

Growth in online sales, Internet shopping and other e-commerce transactions expanded demand.

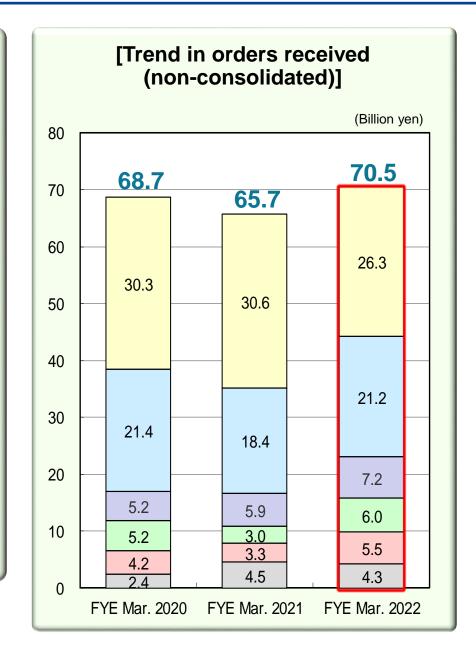
Education/Health care

Received orders for large construction projects for hospitals and educational facilities.

Hotels/Resorts

Trend of rebound due to expansion of demand in anticipation of the post-COVID-19 environment.

Other

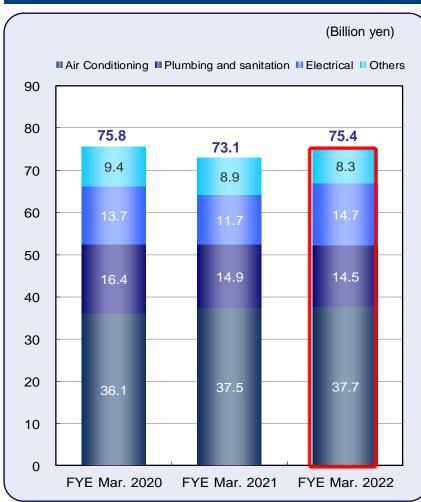


Sales by Category & by Customer (consolidated)

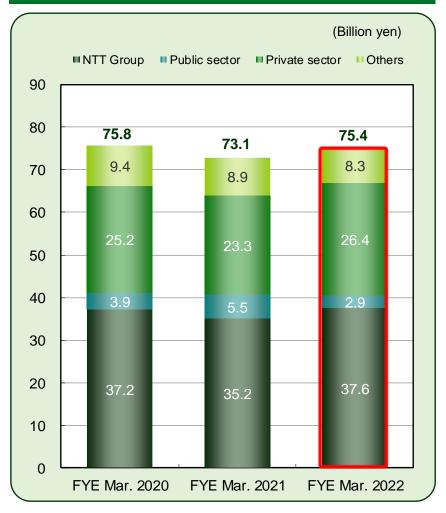


■ Net sales to both the NTT Group and the private sector increased.

By category



By customer

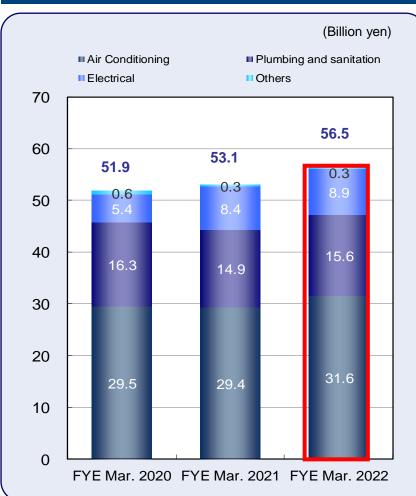


Projects Carried Over

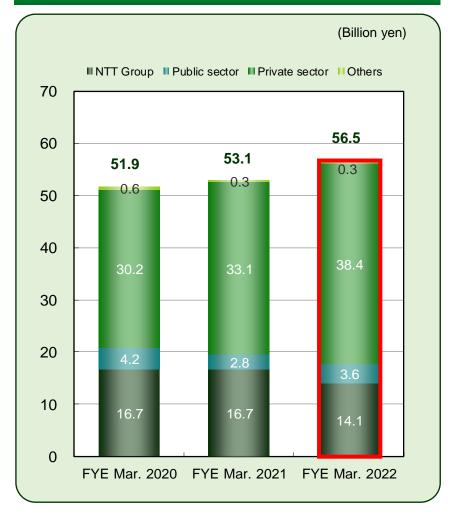


■ Secured over 50 billion yen from strong orders received.

By category



By customer



Summary Income Statements (consolidated)



- The gross profit margin increased substantially due to improved efficiency in construction and cost reduction measures on some large construction projects.
- Extraordinary gains were posted on the sale of cross-shareholdings, etc.

(Billion yen)

	FYE Mar. 2020 (A)	FYE Mar. 2021 (A)	FYE Mar. 2022 (A)	YoY
Net sales	75.8	73.1	75.4	+2.3
Cost of sales	63.9	60.8	60.8	-0.0
Gross profit [Gross profit margin]	11.9 [15.8%]			+2.4 [+2.7%]
SG&A expenses	8.2	8.2	9.0	+0.7
Operating profit (loss)	3.6	3.9	5.6	+1.6
Non-operating income	0.5	0.5	0.5	-0.0
Ordinary profit (loss)	4.2	4.5	6.1	+1.5
Extraordinary income	0.8*	0.0	0.2	+0.2
Income taxes	1.4	1.4	1.9	+0.5
Profit (loss) attributable to owners of parent	3.5	3.0	4.3	+1.2

^{*} Includes 1.2 billion yen in gains on sales of investment securities

Forecast for FYE Mar. 2023



■ We expect to achieve the goals of the final fiscal year of the Seventh Medium-term Management Plan despite the rising cost of equipment and materials caused by disruptions of supply chain.

(Billion yen)

	Seventh Medium-term Management Plan(April 2020 – March 2023)			– March 2023)
	Final Fiscal Year Goal	FYE Mar. 2021 (A)	FYE Mar. 2022 (A)	FYE Mar. 2023 (Plan)
Orders received	80.08	74.3	78.9	80.0
Net sales	80.0	73.1	75.4	80.0
Operating profit	4.5	3.9	5.6	4.5
Ordinary profit	5.0	4.5	6.1	5.0
Profit attributable to owners of parent	3.5	3.0	4.3	3.5
ROE	6.0% or higher	5.2%	7.1%	6.0% or higher

Distributions to Shareholders



Maintaining and increasing stable, consistent dividends and flexibility in buying back shares

[Shareholder dividends] We plan to distribute year-end dividends of 42 yen per share and annual dividends of ■ FYE Mar. 2022: 82 ven per share.

We project dividends of 42 yen per share for both the interim and year-end dividends, ■ FYE Mar. 2023:

and annual dividends of 84 yen per share.

Plan (maximum), 500,000 shares and 1 billion yen/Actual, 495,100 shares and 940 ■ FYE Mar. 2022:

million yen

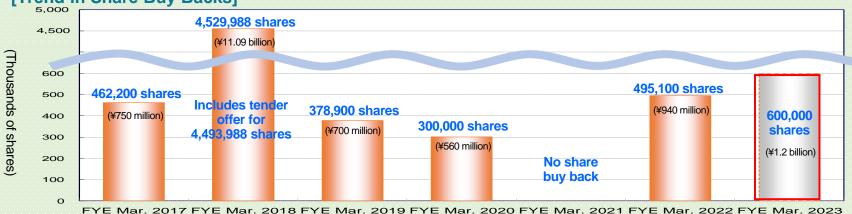
Plan (maximum), 600,000 shares and 1.2 billion yen ■ FYE Mar. 2023:

[Trend in Annual Dividends Per Share]



[Trend in Share Buy Backs]

[Share buy backs]



Seventh Medium-term Management Plan and Priority Domains

Seventh Medium-term Management Plan (April 2020 – March 2023) Fundamental Goals, Core Strategies, and Priority Domains



Fundamental goals

To achieve growth in business and corporate value by making core businesses more profitable and creating new business opportunities

To help create a sustainable society through the convergence of people and technologies

Core strategies

Business strategy

More advanced life cycle total solutions that can benefit all stakeholders

Human resources strategy

"Smart WORK" working style reforms and workforce diversity

Technology strategy

Leading-edge technologies for higher productivity

ESG

Contributing to a sustainable society and striving to enhance corporate value

Priority Domains

Create the Future of Hibiya

Focus on decarbonization and low-carbon technologies in renovation projects and aim to grow into a green engineering company

Pursue DX

Build DX as a new core value and link this to expansion of the solution business and working style reforms

Seventh Medium-term Management Plan Progress Report



- Business strategy
 - (1) Expanded business domains by creating new customer bases
 - (2) Implemented smart business initiatives

(P. 14-15)

- Technology strategy
 - (1) Used ICT technology to improve efficiency of construction management
 - (2) Pursued BIM*

P. 16-17

Human resources strategy Implemented "Smart WORK" working style reforms and diversity

(P. 18)

■ ESG Response

Pursued ESG to contribute to the realization of a sustainable society

(P. 19)

We use it to improve the efficiency of design and construction, reduce the hours of work involved, and improve quality.

^{*} BIM: An abbreviation of "Building Information Modeling." A method for building virtual buildings on a virtual platform. It is used to integrate information on planning, design, construction, and maintenance and management.

Business strategy (1)



Expanded business domains by creating new customer bases

Provided services to customers through cooperation with alliance partners (NTT Group, leasing companies, consulting companies, energy suppliers, etc.).

ZEB*

Energy service

Decarbonization & CO₂ reduction

BCP

DX

Proposed design services, energy conservation consulting services, etc. (46 proposals presented in fiscal year ended March 31, 2022)

Alliance Partners	Area	Proposals & Other Initiatives and Project Orders Received
NTT Group	Decarbonization & CO ₂ reduction	Strengthened initiatives in CO ₂ reduction projects for local governments
NTT Gloup	DX	Developed and implemented gateway linking sensors and equipment to create a smart building
	ZEB	Received an order for conversion to ZEB* from a local government museum using leased equipment
Leasing companies	Decarbonization & CO ₂ reduction	Received an order to conduct a survey on LED lighting in public facilities
	ВСР	Received order for leasing of restroom facilities in 56 elementary and middle schools in the city of Matsudo (including infection prevention and emergency sheltering response)
		Received order for surveying the feasibility of converting a town hall and three other facilities to ZEB
Consulting companies	ZEB	Received order for verification of private sector conversion of stores to ZEB and construction of a ZEB research facility
Energy suppliers	Energy service	Received order for installation of heating equipment in an energy center

^{*} ZEB: An abbreviation of "Net Zero Energy Building." Refers to a building designed to achieve net zero primary energy consumption on an annual basis while maintaining a comfortable room environment.

Business strategy (2)



Implement smart business initiatives

Provide new value in urban development and to communities through IoT, AI, and other smart technologies.

Smart buildings/ Data usage



Achieve energy savings and comfort through integrated control of equipment and instrumentation based on data obtained from sensors

Gateways/ Cloud link



Support streamlined operation of a multiple different buildings and facilities through integrated management that links them together

Attendance management/ Security



Improve the level of security through integrated management and operation of buildings, equipment, communications, and other diverse systems

Examples of orders received

(including links to equipment, cloud

communication, etc.)

- Use of sensors in buildings being redeveloped in the Tokyo Metropolitan Area
- Image recognition authentication in office buildings
- Development of software to verify wireless sensors in a research facility in Western Japan
 - Design to convert a large building in the city center to a smart office building

- Development of software to connect robots in high-rise office buildings in the Greater Tokyo Metropolitan Area
 Upgrading security systems in government buildings
 Ingraded the security systems
 - Upgraded the security systems in multiple buildings in the Western Japan area

Technology Strategy (1)



Use ICT technology to improve efficiency of construction management

Reduce costs and achieve higher safety and quality by using ICT technology to improve the efficiency of construction management.

Introduce camera systems and application software in construction divisions nationwide.

Perform checks and follow-up remotely, from one's desk.

Safety & quality patrol

Jobsite rounds

Onsite presence for hazardous processes

Cost reductions

- Reduced construction division personnel transfers and stand-by time by roughly 2,500 hours (cumulative total over nine months)
- Prevented defects, errors in advance

Safety & quality improvements

- Increased the number of jobsite rounds by 40%, by conducting remote rounds
- Increased training and support of and opportunities to communicate for young employees

Category	360º Cameras	Wearable cameras for work	Remote monitoring cameras	MetaMoji application software
Number installed (as of March 31, 2022)	148 cameras	32 cameras	30 cameras	300 IDs
Number of projects used in (Total installations nationwide from July 2021 to March 2022)	413 projects	190 projects	286 projects	428 projects

Technology Strategy (2)



Pursue BIM

As the need for BIM support increases, build an internal company structure to support BIM and introduce and use BIM at jobsites.

Built the structure

Established a BIM Promotion Office

Opened a training facility in the Gotanda office

 Provided lecture courses nationwide Rebro*1 lecture course:
 Held 3 times 33 attendees, total

Strengthened onsite initiatives

FYE March 2022 Used BIM data in examination at 7 jobsites nationwide

- Introduced full BIM at 2 jobsites*2
- Used BIM to determine potential interference with the installation and operation of planned equipment and form a consensus with the customer at the design and exploration stage

Future Initiatives

- Expand the BIM software that can be used, train personnel, and continue to improve the knowledge of employees through training, etc.
- Use BIM data at the construction stage and aim to link BIM data to general contractors, etc.

^{*1} CAD software for building construction equipment: Equipped with 3D computer graphics function and is widely used as a high-performance 3D CAD system.

^{*2} BIM is used to create designs, structures, facility construction drawings, etc. Because a BIM model is used to avoid interference and create drawings after resolving construction problems, it can be expected to improve construction efficiency and quality.

Human Resources Strategy



"Smart WORK" working style reforms and diversity

Support for staying healthy

Roll out activities to improve employee health and vitality

Exercise	 ✓ Set a company-wide goal for the total number of steps and raised awareness about walking ✓ Held an event where individuals set goals and solicit donation pledges for the number of steps.
Seminars	 Held professional seminars in each area and learned concrete implementation methods.
Communication	 Provided opportunities for employees to communicate among themselves using an internal SNS.
Raising awareness	✓ Displayed brief health points to raise awareness of health.

Encourage male employees to take childcare leave

FYE March 2022

Percentage of male employees who took childcare leave

Goal 15% or more

Result: 22.8%

- ✓ Expect insights and growth from childcare.
- Promoted the advancement of women through the participation of men in childcare (strengthen diversity initiatives).

Activities of the Career Design Project for Women

Ongoing PDCA initiatives to promote the advancement of women

D

✓ Establishing a women's community.

- Designing careers that provide a balance between work and private lives.
- Establishing a system and holding training sessions.
- Aiming to provide an environment and framework that both men and women can work in easily.

- Engaging in dialog with targeted superiors and senior employees.
- ✓ Holding career design presentation events.
- ✓ Identifying the issues in continuing to work and career advancement.
- ✓ Suggesting working styles to the company.

Office Upgrades

Kansai Branch, Okinawa Branch, and Toyama Sales Office

Form project teams at each location and consider working styles and office environment.

- Stimulated communication by adopting a free address (unassigned seating) system, establishing a refreshment corner, etc.
- Enhanced ICT tools for branches to monitor jobsites in real time.



▲ Okinawa Branch

ESG Response



Pursue ESG to contribute to the realization of a sustainable society

Element	Important Issue	Action Item	Initiative	
Environment E	Realizing a sustainable society	Environment	 Operated an environmental management system based on ISO 14001 Strengthened initiatives aimed at sustainable information disclosure. Specified materialities^{*1} and considered response to TCFD^{*2} recommendations. Improved both the quality and quantity of information disclosure. 	
		Employment		
	Investment in human	Human resource development	See Human Resources Strategy on P. 18	
	capital	Health		
Social	Social	Diversity		
S	Contributing to society and local communities	Social contributions	Strengthened measures aimed at making a sustainable contribution to society and communities (cleaning, donation activities, etc.)	
	Ensuring safety & quality	Health, safety, and quality	Quality control based on ISO 9001	
		Compliance	Response to revised Corporate Governance Code and smooth	
		Business risks	transition to the Prime Market	
Governance	Sound management	Corporate governance	Enhanced the Board of Directors, operated Nomination and Compensation Advisory Committees, reinforced internal audits, ensured	
G	J	Information disclosure	thorough compliance, enhanced IR, etc.	
		Information security	Continued to use an information security management system (ISMS) in operations based on ISO 27001	

^{*1} Important social issues that should be addressed.

Task Force on Climate-Related Financial Disclosures: Recommends that companies disclose information concerning the risks and opportunities associated with climate change.

Group Strategy



Organically deploy a Group value chain

Enhance the functions of each company and target growth in each segment while manifesting synergistic benefits.

Hibiya Engineering Group (equipment and construction business)

- Hibiya Tsushou Co., Ltd.: A trading company that sells air conditioning, sanitation, and electrical equipment, etc.
- Nikkey Co., Ltd.: A manufacturer that manufacturers fire prevention and smoke exhaust equipment, attendance management systems, etc.

Hibiya Engineering, Ltd.

Synergistic benefits

Hibiya Tsushou Co., Ltd.

- > Strengthened initiatives in selling digital and environmental products.
- ➤ Business in recycling CFC gases.

Nikkey Co., Ltd.

- ➤ Expanded Noda plant to expand the damper business.
- ➤ Strengthened initiatives in system development and sales.
- > Strengthened security business initiatives.

Major completed projects

List of Major Completed Projects



Priority Domain	Name of Property	Page Listed on
	Data Center A (new construction/air conditioning and sanitation)	_
Data centers /Information	Data Center B (new construction/air conditioning and sanitation)	_
Data centers /information	Data Center C (new construction/air conditioning, sanitation, and electrical)	_
	Data Center D (renovation/air conditioning and sanitation)	_
	JR Kawasaki Tower Office Building (new construction/sanitation)	P. 23
	AP L-tage Gusukuma Building (new construction/air conditioning and sanitation)	P. 23
Office buildings	Sumitomo Realty & Development Osaki Twin Building East (new construction/sanitation)	P. 24
	NTT WEST i-CAMPUS Head Office Building A (new construction/sanitation)	P. 24
	URBANNET NAGOYA nexta BUILDING (new construction/electrical)	P. 25
Production/Distribution	GLP ALFALINK SAGAMIHARA I (new construction/air conditioning and sanitation)	P. 26
facilities	Asadaame Co., Ltd. Murayama Plant (new construction/electrical)	_
Research facilities	MITSUI LINK-Lab KASHIWANOHA 1 (new construction/air conditioning and sanitation)	P. 25
Hotels	LA VISTA TOKYO BAY (new construction/air conditioning)	P. 26



JR Kawasaki Tower Office Building

Largest office building in the Kawasaki area



Location	Kawasaki City, Kanagawa	
Floor area	134,673m ²	
Structure	29 stories above ground, 2 stories below ground	
Hibiya's work	Sanitation	

AP L-tage Gusukuma Building

Provides new office space along main highway routes



Location	Urasoe City, Okinawa	
Floor area	11,369m²	
Structure	7 stories above ground	
Hibiya's work	Air conditioning & sanitation	



Sumitomo Realty & Development Osaki Twin Building East

A new large business tower in Osaki that blends offices with greenery



Location	Shinagawa-ku, Tokyo	
Floor area	40,567m ²	
Structure	19 stories above ground, 2 stories below ground	
Hibiya's work	Sanitation	

NTT WEST i-CAMPUS Head Office Building A

NTT West Head Office building



Location	Osaka City, Osaka
Floor area	38,541.87m ²
Structure	12 stories above ground, 1 story below ground
Hibiya's work	Sanitation

Offices / Research Facilities



URBANNET NAGOYA nexta BUILDING

Next-generation innovative offices



Location	Nagoya City, Aichi
Floor area	30,537m ²
Structure	20 stories above ground, 1 story below ground
Hibiya's work	Electrical

MITSUI LINK-Lab KASHIWANOHA 1

Lab rental facility near facilities conducting research on science and technology that could become the seeds for new industries



Location	Kashiwa City, Chiba
Floor area	10,885m ²
Structure	6 stories above ground
Hibiya's work	Air conditioning & sanitation

Hotels / Distribution Facilities



LA VISTA TOKYO BAY

A waterfront resort hotel floating above Tokyo Bay



Location	Koto-ku, Tokyo		
Floor area	31,997m²		
Structure	14 stories above ground		
Hibiya's work	Air conditioning		

GLP ALFALINK SAGAMIHARA I

Japan's largest, most innovative distribution center



Location	Sagamihara City, Kanagawa
Floor area	331,343m ²
Structure	6 stories above ground
Hibiya's work	Air conditioning & sanitation

References

Create the Future of Hibiya (1)



Needs involving buildings are likely to shift from new construction to the utilization of existing buildings in response to the rising public interest in climate change and sustainability. Create the Future of Hibiya aims for growth along with a focus on decarbonization and low-carbon technologies in renovation projects.

[Goals of Create the Future of Hibiya]

Opportunities

- Needs involving zero emissions building (ZEB) technologies for decarbonization, low carbon and resource recycling
- Growth of the renovation market reflecting structural issues for buildings and cities
- Creation of smart cities based on self-sufficient, dispersed energy

Actions

- Use renovations for ZEB and "Re-ZEB" for energy efficiency plus people-friendly properties (pleasant work spaces, health, etc.)
- "Beyond ZEB" for increasing real estate value
- "Composite ZEB" for recycling regional heat, electricity and water
- Build a new business model that matches changes to the profit structure due to using "Composite ZEB" for an energy management business and other actions

Our reputation

- Incorporate Create the Future of Hibiya activities in ESG measures to contribute to society
- Earn recognition as a green engineering company with technologies for a sustainable society
- Create businesses with substantial added value by using ZEB technologies targeting mainly the renovation market
- A new stage of growth as an engineering company for smart cities

Progress

- Develop technologies, strengthen the technology development infrastructure
- Establish strategic task forces for human resources, technologies and other resources and for construction experience
- Investments for business alliances, M&A and other activities
- Sales channels (switch from local governments to public-sector companies)

Create the Future of Hibiya (2)



[R

[Roadma	p for green engineering]						
	Next 3 years Model construction and trials	Trials	3 to 7 years and implementation		7 to 10 yo Implementation and		
Market outlook	ZEB renovation needs mainly for local government	ZEB needs expand to the private sector			Emergence of self-sufficient, dispersed cities with local production and consumption		
	Create Re-ZEB technologies		Establish Hibiya ZEB		Become a gree		
New tec	Storage battery/heat storage system Research for reused energy and unus energy		Create composite energy use technologies		Re-ZEB	Composite ZEB (Smart cities)	
New technologies	Cloud open building automation system (BAS) partnerships/automatic control		Acquire our own instrumentation know-how		Grid technologies (heat/electricity/ water)	Digital transformation (DX)	
	Gray water treatment technologies		Gray water facility installation technology		Energy management		
Stra	◆ Establish project teams for specific strategic objectives				Use Composite ZEB and other recycling technologies for zero-emission cities		
 Establish project teams for speci Human resources (establish acaknow-how) Capital (seek alliances and partness) 					More progress and technology and info		

The Digital Transformation (1)



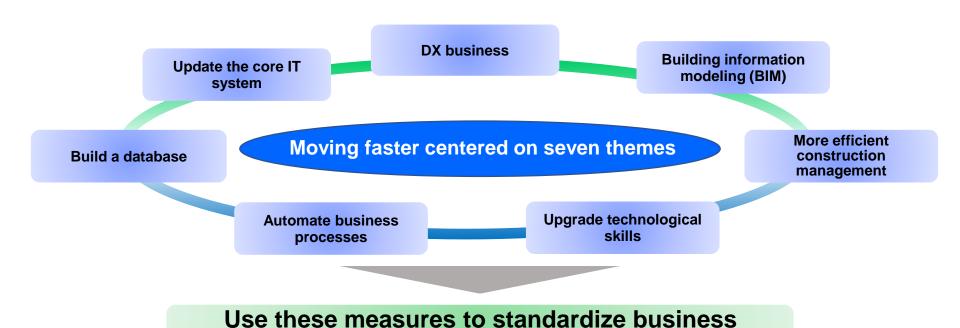
- ◆ New services backed by equipment using smart office and other ICT/digital technologies
- Proposals and construction for value-added systems for growth of the solutions business

Business strategy

Assemble a framework for DX business activities to expand to new market sectors, develop and acquire new technologies, proposals using new technologies, demonstrations of benefits of new technologies

Working style reforms

Use the DX for more efficient working styles and the use of many ways of doing jobs that are not restricted by time of day or locations (telework, shifts, etc.)



processes and DX progress

The Digital Transformation (2)



Solution business

Working style

reforms

expansion

Hibiya Engineering Group activities based on the Seventh Management Plan

DX business

Building information modeling (BIM)

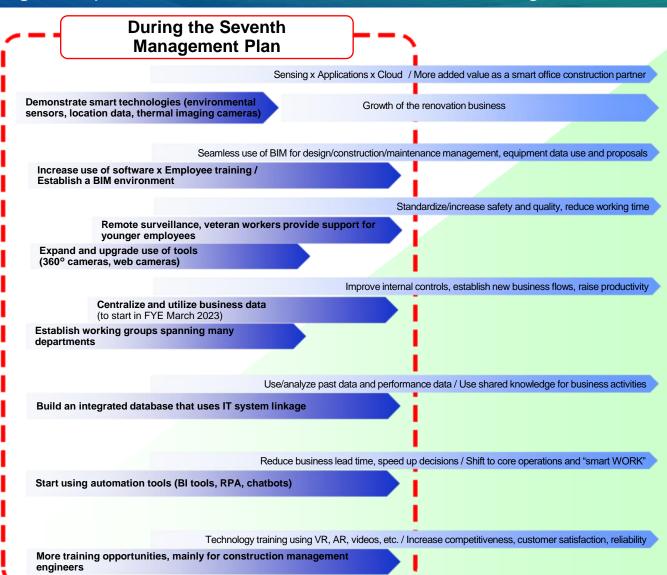
More efficient construction management

Update the core IT system

Build a database

Automate business processes

Upgrade technological skills



ZEB Business Initiatives



Examples of local government ZEB initiatives and private sector ZEB initiatives

Local government ZEB

City/Town halls, etc.

 Survey project aimed at using subsidies from the Ministry of the Environment for ZEB conversion/creation

Group structure

Hibiya Engineering, Ltd. (representative)

Company A

We surveyed the potential for converting a town hall and three other facilities to ZEB and reported that it was possible to achieve ZEB Ready status.

Target conversion to ZEB

Private sector ZEB

Research facilities

 Construction to build a new ZEB research facility for a building construction company

Role of Hibiya Engineering, Ltd.

Facility design

ZEB planner

Also provided guidance on achieving ZEB status during construction, as a ZEB planner

Local government museum

 A ZEB verification project to strengthen resilience using subsidies from the Ministry of the Environment ZEB conversion project using initial company leases



Retail stores

■ Provided consulting services to convert retail stores to ZEB

Hibiya Engineering, Ltd.

Consulting company

7 projects completed (1 of which has a BELS* certification application in progress)

Aim to provide consulting services for stores nationwide

* BELS: Refers to the Building-Housing Energy-efficiency Labeling System. This system provides third-party rating and certification of energy-saving performance.

Initiatives Aimed at Decarbonization and Energy Conservation Projects



Decarbonization/energy conservation using alliances



Power source during grid interruptions

COVID and CO₂ reduction measures

Better emergency evacuation environment/
Improve hygiene environment



Project Group

Hibiya Engineering



Consultant, others

Roles: Survey of existing equipment for energy conservation/CO₂ reduction, installation/maintenance of equipment, use of local companies to support the local economy

Install

Elementary school in Matsudo: Bathroom renovation (automatic faucet activation, etc.) LED lights, new ventilation system

Renovation for a barrier-free evacuation facility including COVID safety functions

Manazuru funeral hall: Updated gas heat pump, LED lights, disaster resilience

Renovation for evacuation facility with power supply, environmental protection measures, etc.

Use accomplishments of prior years

Nagano prefecture government buildings

Used bulk lease for LED lights to reduce CO₂ emissions

Manazuru-machi, Kanagawa prefecture

Installation of self-sufficient, dispersed energy system, etc.

Sango-cho, Nara prefecture

Upgrade of carbon management and other activities

A Stronger Jobsite Oversight System



ONE TEAM and Face to Face activities

ONE TEAM Project

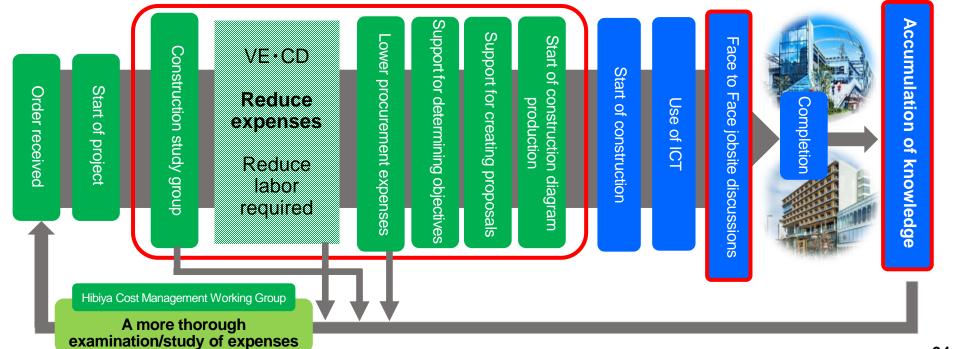
Establishment of a team encompassing all tasks to support construction operations from the very first stage; aims for cost reductions and other benefits

FYE March 2022 Accomplishments: Used at 18 jobsites

Face to Face Project

Supervisors with extensive knowledge of the construction project visit the jobsite to strengthen communications and reduce the need to redo jobs and other risks

FYE March 2022 Accomplishments: Used at 30 jobsites

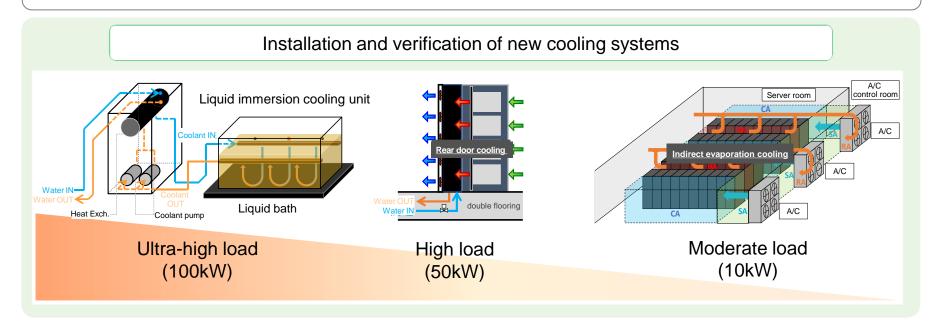


Data Center Construction Technologies



Capabilities for all data center cooling needs, from new construction to updates

■ Expertise for installing ultra-high-load cooling systems and verifying performance



Cooling System Renovation (cooling capability)

FYE March 2021	41MW	>1,500 units
FYE March 2020	51MW	>1,600 units
FYE March 2019	40MW	>1,100 units

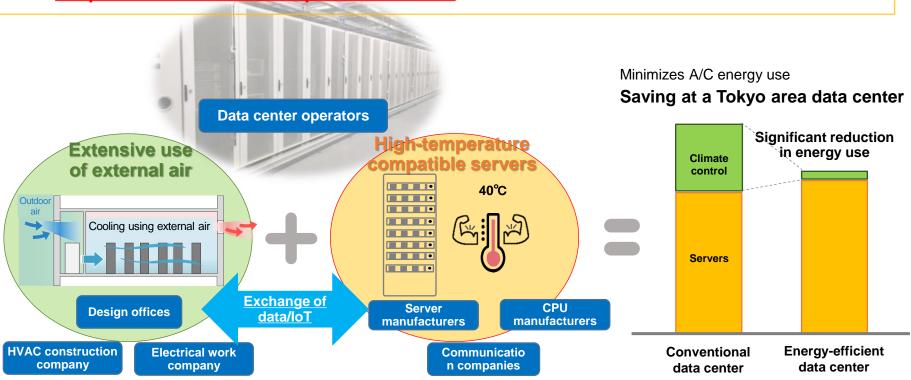
Minimizing Data Center A/C Energy Consumption



Activities for creating an energy-efficient data center for NTT Data Corporation

Used for HVAC equipment control by server internal sensors

- Data links incorporating the IoT overcome barriers between ICT equipment management and facility management
- Conventional temperature sensors do not monitor the internal temperature of servers, which is what must be held down
 - ⇒ <u>Using data from sensors inside servers for climate control makes it possible to control temperatures in the most important locations</u>



Aisle Capping for Smaller Computers in Data Centers



A flexible aisle capping system for small computer rooms

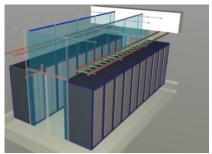
Features

More efficient climate control Uniform temperature of rack air supply surface

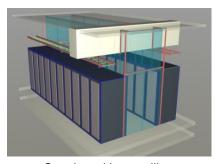
Flexible installation to match environment for equipment

Low cost by using general-purpose sheets

Potential applications



Capping with ceiling



Capping with no ceiling

Capping in use



Installed under a ceiling beam

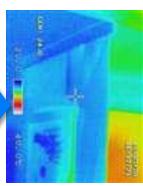


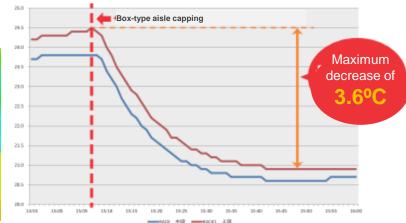
Box-type capping

Benefits



Improvement in air supply surface allows a more energy efficient thermostat setting for the climate control system



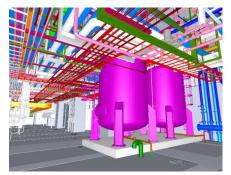


Examples of Building Information Modeling



BIM for constructing a new building with greater efficiency

- 3D imaging for determining placements of pipes and ducts relative to steel beams, braces and many other obstacles eliminates the risk of needing to redo a job.
- 3D presentations of the locations of equipment ensure trouble-free agreements between designers and project owners; customer response is very positive
- Using BIM for pipe processing orders, simulated deliveries and other items makes all tasks efficient and trouble-free









▶ No need to repeat tasks to fix mistakes

Construction proceeds using adjusted diagrams

■ Advantages of using BIM

<u>3D</u>

- Placement adjustments/interference checks for facility designs
- Adjustments using overall diagrams, faster decisionmaking
- More efficient checking of confirmation applications, etc.



<u>Database links</u>

- ▶ BIM-linked automatic calculations (loads, energy conservation)
- Automated equipment designs (device tables, device configurations)
- ▶ Use of information about building characteristics for maintenance operations

BIM: An abbreviation of "Building Information Modeling." A method for building virtual buildings on a virtual platform. It is used to integrate information on planning, design, construction, and maintenance and management. We use it to improve the efficiency of design and construction, reduce the hours of work involved, and improve quality.



時代にまっすぐ、技術にまじめです。