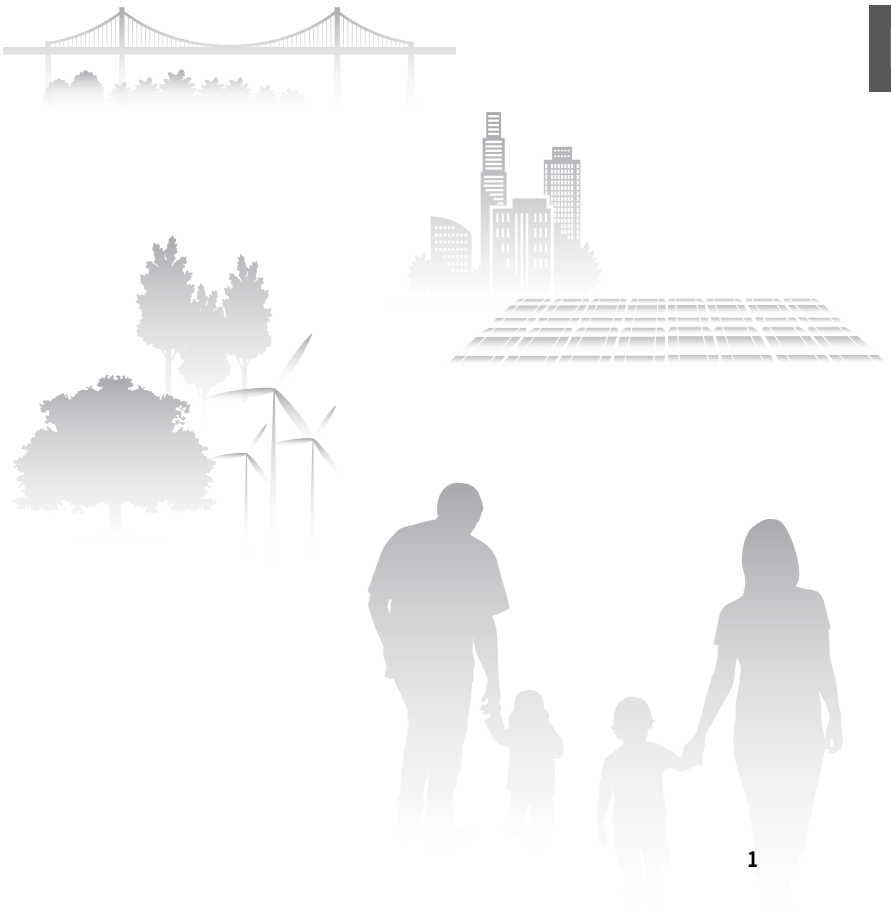
OBAYASHI

E NVIRONMENT
S OCIAL
G OVERNANCE

DATA BOOK 2020



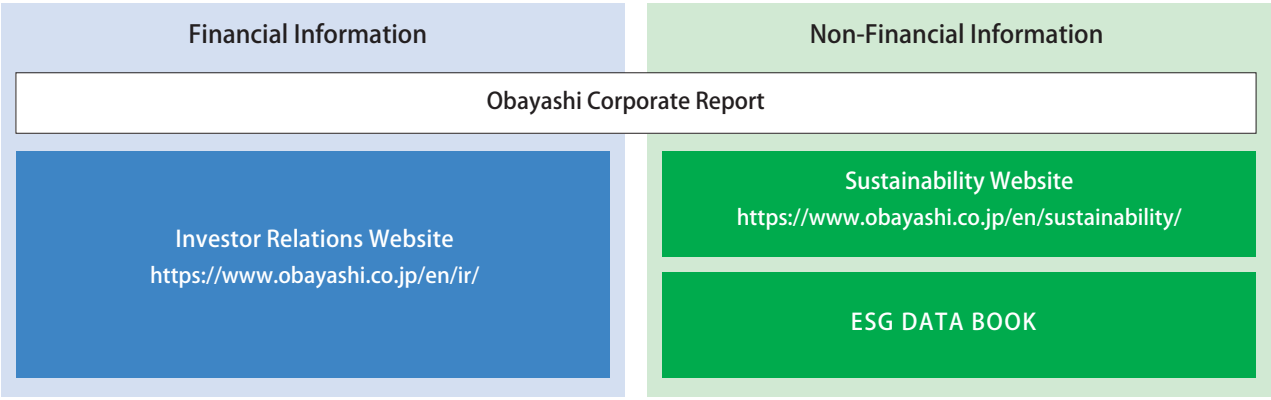
Editorial Policy

Purpose of Publication

The Obayashi Corproate Report is published for readers to understand the overall business activities of Obayashi and the Obayashi Group. This ESG DATA BOOK is an additional booklet for readers interested in ESG performance of Obayashi and the Group.

Information Disclosure System

This ESG DATA BOOK concentrates on the key information needed to understand Obayashi and the Obayashi Group. More information is available on our website.



Obayashi also discloses financial information in its annual and quarterly financial statements.

Reporting Scope

This ESG DATA BOOK includes data of Obayashi and the Obayashi Group. Else, it the scope of the data is noted.

Reporting Period

Fiscal year ended March 31, 2020 (FY2020.3) and including some information and activities planned in the future.

Environment

Basic Policy

Policy

Environmental Policy

https://www.obayashi.co.jp/en/sustainability/environment.html#section1

Biodiversity Policy

https://www.obayashi.co.jp/en/sustainability/environment/action.html#section3

Management

Promotion System

Environmental Management System Organizational Structure

https://www.obayashi.co.jp/en/sustainability/environment.html#section2

Strategy, Materiality and KPI

Strategy

Obayashi Sustainability Vision 2050

https://www.obayashi.co.jp/en/sustainability/vision.html

Materiality

Establish an Environmentally Responsible Society

【Action Plan】

- Promote environmentally friendly business
- Promote decarbonization
- Promote renewable energy business
- Contribute to realizing a recycling-oriented society

KPI

■ Promote environmentally friendly business

- Ratio of design and construction projects (of 2,000m² and up) with CASBEE ranking of A or higher

  At least **70**% by FY2022.3

- Ratio of sustainability-related capital expenditure to real estate leasing business capital expenditure

  At least **90**% by FY2022.3

■ Promote renewable energy business

- Electricity generated annually as a result of renewable energy business

  At least **370,000**MWh

■ Promote decarbonization

- Direct contribution of CO2 emissions reduction rate (vs. FY2014.3)

  ▲85% reduction by FY2031.3

- Indirect contribution of CO2 emissions reduction rate (vs. FY2014.3)

  ▲25% reduction by FY2031.3

■ Contribute to realizing a recycling-oriented society

- Emissions of construction waste material per unit value of completed construction work

  No more than **140t**／billion yen

ESG Performance

Decarbonization

▶ Obayashi Group's CO2 Emissions

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Obayashi Group's CO2 emissions		1,000t-CO2	**334**	**300**	**316**	**289**	**290**
	Group companies		110	102	98	96	93
	Obayashi		224	198	218	193	197

▶ CO2 Emissions Reduction at Construction Sites

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
CO2 Emissions Reduction at Construction Sites							
Total amount of emissions		1,000t-CO2	**217**	**190**	**211**	**186**	**191**
Amount of emissions per completed work		t-CO2/billions of yen	**190**	**150**	**170**	**140**	**140**
CO2 emissions reduction rate (vs.FY2014.3)		%	**5.2**	**16.8**	**8.0**	**18.8**	**16.6**
Composition of CO2 Emissions Sources at Construction Sites							
Electric Power		%	**24.7**	**29.1**	**28.4**	**31.5**	**28.5**
Diesel fuel			**74.6**	**69.6**	**70.6**	**66.9**	**70.2**
	Material/ waste transport		22.4	21.3	24.7	25.1	28.9
	Drilling machinery		24.3	25.5	23.5	18.5	17.7
	Other construction machinery		27.9	22.8	22.4	23.3	23.6
Kerosene			**0.7**	**1.3**	**1.0**	**1.6**	**1.3**
KPI	Direct contribution of CO2 emissions reduction rate (vs.FY2014.3)	%	**-**	**-32**	**-36**	**-47**	**-55**

▶ CO2 Emissions Reduction of Designed & Build Buildings

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Number of designed buildings		cases	**63**	**57**	**42**	**35**	**41**
Total area of designed buildings		m2	**1,769,579**	**1,430,612**	**832,529**	**735,082**	**1,721,919**
Amount of CO2 emissions reduced		1,000t-CO2/year	**40**	**27**	**17**	**10**	**31**
CO2 emissions reduction rate		%	**27**	**23**	**26**	**20**	**34**
KPI	Indirect contribution of CO2 emissions reduction rate (vs.FY2014.3)	%	**-**	**-14**	**-16**	**-19**	**-20**

▶ Reduction at Offices (Applicable facilities: Head Office, Main Offices, other branch offices)

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
CO2 Emissions at Offices						
	1,000t-CO2	**7.5**	**7.5**	**6.8**	**6.3**	**6.2**
Electric Power Consumption at Offices						
	kWh/person	**1,341**	**1,328**	**1,220**	**1,250**	**1,322**

Reducing Tap Water Consumption

▶ Tap Water Consumption Reduction

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Civil engineering construction sites	m3/billions of yen	**1,960**	**1,800**	**1,450**	**2,050**	**1,320**
Building construction sites	m3/billions of yen	**820**	**790**	**890**	**590**	**1,010**
Office	m3/person	**4.8**	**4.2**	**4.3**	**4.3**	**4.2**

Reducing Paper Consumption

▶ Obayashi Group's Paper Consumption Reduction at Offices

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Obayashi Group's paper consumption reduction at offices		t	**341**	**326**	**321**	**310**	**341**
	Group companies		65	61	63	59	60
	Obayashi		276	265	258	251	281

▶ Paper Consumption Reduction at Offices (Applicable facilities: Head Office, Main Offices, other branch offices, robotics centers, material/equipment centers, and Technical Research Institute)

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Paper consumption at offices		kg/person	**49**	**47**	**46**	**45**	**51**
	Recycled paper		46	44	43	42	47
	Others		3	3	3	3	4
Recycled paper consumption rate at offices		%	**93.9**	**93.6**	**93.5**	**93.3**	**92.2**

Reducing Waste Emissions

▶ Obayashi Group's Construction Waste Emissions

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Obayashi Group's construction waste emissions		10,000t	**311**	**287**	**255**	**229**	**216**
	Group Companies		33	31	19	24	29
	Obayashi		278	256	236	205	187

▶ Amount of Construction Waste Emission, Final Disposal and Recycling Rate (Excluding sludge)

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Amount of Construction Waste Emission, Final Disposal and Recycling Rate (Excluding sludge)							
Construction Waste Emissions		1,000t	**1,757**	**1,563**	**1,342**	**1,301**	**1,021**
	New building construction		187	178	181	176	241
	Demolition		1,570	1,383	1,161	1,125	780
Final disposal		1,000t	**31**	**43**	**46**	**46**	**41**
Recycling rate		%	**98**	**97**	**97**	**97**	**96**
Breakdown of Waste Emissions by Type							
Construction Waste emissions		1,000t	**1,757**	**1,563**	**1,342**	**1,301**	**1,021**
	Concrete debris		1,316	1,120	950	971	697
	Asphalt and concrete debris		177	152	159	131	123
	Wood scraps		60	49	45	37	28
	Other sorted waste		164	206	150	117	128
	Mixed waste		40	36	38	45	45

■Construction Waste Disposal / Recycling Ratio by Type

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Concrete debris	Final disposal	%	**0.0**	**0.1**	**0.5**	**0.1**	**0.1**
	Reduction		**0.1**	**0.0**	**0.1**	**0.0**	**0.1**
	Recycle and reuse		**99.9**	**99.9**	**99.4**	**99.9**	**99.8**
Asphalt and concrete debris	Final disposal	%	**0.0**	**0.1**	**0.1**	**0.2**	**0.2**
	Reduction		**0.1**	**0.0**	**0.0**	**0.0**	**0.0**
	Recycle and reuse		**99.9**	**99.9**	**99.9**	**99.8**	**99.8**
Wood scraps	Final disposal	%	**0.4**	**0.3**	**0.5**	**0.6**	**0.6**
	Reduction		**3.8**	**1.9**	**1.8**	**1.6**	**2.7**
	Recycle and reuse		**95.8**	**97.8**	**97.7**	**97.8**	**96.7**
Other sorted waste	Final disposal	%	**13.6**	**16.1**	**21.0**	**23.1**	**22.7**
	Reduction		**1.2**	**0.8**	**1.4**	**2.7**	**0.8**
	Recycle and reuse		**85.2**	**83.1**	**77.6**	**74.2**	**76.5**
Mixed waste	Final disposal	%	**21.5**	**24.6**	**25.0**	**39.0**	**32.7**
	Reduction		**6.1**	**5.4**	**6.3**	**4.2**	**4.4**
	Recycle and reuse		**72.4**	**70.0**	**68.7**	**56.8**	**62.9**
Sludge	Final disposal	%	**6.7**	**6.6**	**1.7**	**2.5**	**1.4**
	Reduction		**33.4**	**27.8**	**25.5**	**25.8**	**22.9**
	Recycle and reuse		**59.9**	**65.6**	**72.8**	**71.7**	**75.7**

▶ Construction Waste Emission Reduction of New Building Construction

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
KPI	Emissions of construction waste material per unit value of completed construction work (excluding sludge)	t/billions of yen	**163**	**142**	**147**	**131**	**178**
Waste emissions from new building construction work (excluding sludge)		kg/m2	**27.9**	**27.4**	**20.2**	**39.3**	**33.3**
Mixed waste Emission from new building construction (excluding sludge)			**5.8**	**4.6**	**4.1**	**5.3**	**3.8**
Amount of general waste emissions at office *1		kg/person	**81**	**70**	**74**	**67**	**85**
	Recycling		66	56	55	50	59
	Other		15	14	19	17	26
Recycling rate		%	**81**	**81**	**75**	**75**	**71**

*1 Applicable facilities: Head Office, Main Offices, other branch offices, robotics centers, material/equipment centers, and Technical Research Institute

▶ Emissions Reducing Management

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Zero emissions standards achievement*2 rate of construction		%	**82**	**83**	**81**	**76**	**72**
	Building construction*3		81	81	78	78	70
	Civil engineering*3		83	87	84	70	76
Electronic manifests sheets used		thousands of sheets	**377**	**346**	**346**	**318**	**308**
Electronic manifests sheets usage rate		%	**90**	**93**	**95**	**94**	**96**

*2 Final disposal rate of construction waste (excluding sludge) is below 5%. That amount of new building construction is below 5kg/㎡.

*3 Construction waste emissions (excluding sludge) below 1,000t of renewal construction and waste emissions (excluding sludge) below 10t of civil engineering work is excluded.

Chemical Substances Management

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Amount of Consumption of Substances Subject to the PRTR Law[*4]							
Xylene		kg	**196**	**308**	**317**	**348**	**169**
Toluene			**76**	**121**	**253**	**381**	**346**
Ethylbenzene			**31**	**42**	**85**	**92**	**57**
Trimethylbenzene			**173**	**226**	**227**	**226**	**287**
Others			**198**	**276**	**479**	**549**	**443**
Total			**674**	**973**	**1,361**	**1,596**	**1,302**
of which, Tokyo Robotics Center		kg	**344**	**448**	**964**	**1,242**	**790**
	Xylene		134	172	241	288	64
	Toluene		31	42	172	318	228
	Ethylbenzene		12	16	39	75	30
	Trimethylbenzene		88	129	167	146	213
	Others		79	89	345	415	255
of which, Osaka Robotics Center		kg	**330**	**525**	**397**	**354**	**512**
	Xylene		62	136	76	60	105
	Toluene		45	79	81	63	118
	Ethylbenzene		19	26	46	17	27
	Trimethylbenzene		85	97	60	80	74
	Others		119	187	134	134	188
Asbestos Processed							
Asbestos Processed		t	**3,271**	**2,249**	**3,628**	**1,141**	**1,617**
CFC and Halon Gases Collected and Processed[*5]							
CFC and Halon Gases Collected and Processed		t	**7.9**	**8.9**	**2.9**	**4.9**	**4.8**
	CFC gas		7.9	8.7	2.8	4.1	2.9
	Halon gas		0.0	0.2	0.1	0.8	1.9
PCB waste materials[*6] **removal**[*7]							
Capacitors		Units	**133**	**140**	**0**	**0**	**0**
Transformers			**0**	**0**	**0**	**0**	**0**

*4 A law to improve the monitoring and management of releases to the environmnet of designated chemical substances.

*5 Amount of recycled CFC gas and Halon gas was 0.0t and the amount of disposed CFC gas and Halon gas was 4.8t in FY2020.3.

*6 PCB waste materials must be transported to Japan Environmental Safety Corporation, the company designated by the government of Japan.

*7 Methods for the storage and disposal are regulated by law because these materials contain polychlorinated biphenyl (PCB), which is a toxic substance.

Promoting Environmentally Friendly Businesses

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
K P I	Ratio of design and built projects (of 2,000 m2 and up) with CASBEE ranking of A or higher	%	**-**	**66**	**71**	**67**	**75**
K P I	Ratio of sustainability-related capital expenditure to real estate leasing business capital expenditure	%	**-**	**95.0**	**98.0**	**91.0**	**92.7**

Promoting renewable energy business

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
K P I	Electricity generated annually as a result of renewable energy business	MWh	**-**	**97,516**	**161,686**	**201,353**	**255,551**
K P I	Capital expenditure of renewable energy business and others	billion yen	**-**	**7.0**	**14.3**	**12.9**	**18.3**

Environmental Accounting

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Cost of Environmental Protection			**29,887**	**31,087**	**40,183**	**31,110**	**32,443**
Cost within business area			**23,080**	**24,679**	**33,121**	**23,845**	**24,536**
	Preventing pollution		3,627	8,443	13,729	5,939	6,016
	Protecting the global environment		1,185	466	629	453	468
	Recycling resources		18,268	15,770	18,763	17,453	18,052
Upstream and downstream cost	Environmental design elements		**1,627**	**1,591**	**1,711**	**1,729**	**1,858**
Cost of management activities			**960**	**954**	**1,695**	**925**	**712**
	Operating EMS		102	135	131	152	122
	Information disclosure /environmental advertisements		72	98	76	91	65
	Supervision and measurements	Millions of yen	244	253	680	258	102
	Environmental education		16	10	7	10	10
	Improving surrounding appearance of construction site		151	84	410	68	53
	Departments associated with environmental activities		375	374	391	346	360
R&D costs	Environmental R&D activities		**3,573**	**3,722**	**3,594**	**4,339**	**5,289**
Social activities costs	Contributions and assistance for environmental organizations		**3**	**5**	**7**	**6**	**5**
Cost of correcting environmental damage			**643**	**136**	**55**	**266**	**43**
	Nature restoration activities		579	104	19	260	32
	Allowances & insurance for damage to the environment		64	32	36	6	11

Environmental Performance Indicators

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
CO2 emissions	Millions of yen/ t-CO2	**5.26**	**6.46**	**5.95**	**7.18**	**6.96**
Construction waste emissions	Millions of yen/t	**6.12**	**6.89**	**6.90**	**7.60**	**5.61**

Calculation formula CO2 emissions: Total sales from a project divided by CO2 emissions during construction
Construction waste emissions: Total sales from a project divided by volume of construction waste emissions (excluding sludge) produced when constructing a new building

Cost of Biodiversity Conservation Project

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Cost of Biodiversity Conservation Project	Millions of yen	**-**	**-**	**47**	**67**	**43**

Green Procurement of Construction Equipment

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Green procurement rate	%	**49**	**41**	**43**	**43**	**43**

Calculation formula: Green procurement = Green procurement cost / total cost of construction equipments
Green procurement include: treated soil, construction waste soil, recycled concrete aggregate, recycled asphalt and concrete, blast furnace cement concrete, blast furnace raw concret, steel scrap, and polycarbonate (Precast concrete)

Impact on Environmental Protection

▶ Input		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Energy consumption		**TJ**	**3,515**	**3,176**	**3,508**	**3,192**	**3,311**
	Construction sites	**TJ**[*8]	3,374	3,031	3,375	3,061	3,178
	of which, electricity purchased	**GWh**	99	106	118	121	119
	Offices, etc.[*9]	**TJ**[*8]	140	144	132	130	132
	of which, electricity purchased	**GWh**	13	13	13	12	13
Water Consumption			**1,292**	**1,284**	**1,327**	**1,231**	**1,505**
	Construction sites	**1,000m3**	1,235	1,225	1,267	1,171	1,444
	Offices, etc.[*9]		57	59	60	60	61
Green Procurement Amount			**64,967**	**54,908**	**63,630**	**56,426**	**53,470**
	Construction material		64,708	54,630	63,300	56,089	53,160
	Recycled paper[*9]	Millions of yen	47	47	47	42	38
	Office supplies [*10]		98	98	110	104	85
	Sitewear		114	133	173	191	187
Input amount of specified controlled substances		t	**-**	**-**	**53,519**	**23,381**	**21,776**

▶ Output		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
CO2 emissions		1,000t-CO2	**225.5**	**198.5**	**218.8**	**193.3**	**198.2**
	Construction sites	1,000t-CO2	**217**	**190**	**211**	**186**	**191**
	Of which, Scope 1 *11		163	135	151	127	137
	Of which, Scope 2 *11		54	55	60	59	54
	Offices, etc. *9		**7.5**	**7.5**	**6.8**	**6.3**	**6.2**
	Of which, Scope 1 *11		0.6	0.7	0.5	0.4	0.5
	Of which, Scope 2 *11		6.9	6.8	6.3	5.9	5.7
	Scope 3 *11	t-CO2	**-**	**-**	**1,544,000**	**1,429,000**	**1,534,000**
SOX emissions			**202**	**174**	**193**	**170**	**179**
	Construction sites	t-SOX	197	169	189	166	175
	Offices, etc. *9		5	5	4	4	4
NOX emissions			**1,185**	**993**	**1,110**	**948**	**1,013**
	Construction sites	t-NOX	1,173	981	1,099	937	1,002
	Offices, etc. *9		12	12	11	11	11
Construction waste (including sludge)		1,000 t	**2,776**	**2,554**	**2,357**	**2,046**	**1,864**
Construction waste reuse (on site) (including sludge)		%	**0.0**	**0.1**	**0.0**	**0.0**	**0.6**
Construction waste recycling (including sludge)		%	**83.8**	**84.8**	**85.7**	**86.9**	**85.5**
Construction waste final disposal (including sludge)		1,000 t	**108**	**116**	**75**	**72**	**68**
Construction waste final disposal (excluding sludge)		%	**1.8**	**2.7**	**3.4**	**3.5**	**4.0**
Total amout of emissions		t	**-**	**-**	**2,360,000**	**2,048,000**	**1,866,000**
Amout of specific chemical substance		t	**-**	**-**	**1**	**2**	**1**

▶ Products and services	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
CO2 emission reduction due to use of environmental design *12 *13	1,000t-CO2	**1,390**	**957**	**586**	**355**	**1,063**

Economic Impact

▶ Input	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Economic impact of emissions reduction and energy conservation on site	Millions of yen	**-155**	**-965**	**1,022**	**-986**	**409**
Electricity used*14 (vs. previous year)		-322	195	302	84	-57
Light oil used*14 (vs. previous year)		157	-1,200	731	-1,097	450
Kerosene used*14 (vs. previous year)		8	33	-11	27	-17
Materials purchased*15 (actual amount)		2.0	6.8	0.0	0.0	33.0

▶ Output	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Benefits from sorting construction site waste	Millions of yen	**186**	**177**	**447**	**500**	**494**
Gain from sales of waste materials		186	177	447	500	494

*8 Unit for energy: 1 terajoule = 1 × 1,012 joules

*9 Applicable facilities: Head office, Tokyo Main Office, Osaka Main Office, other branch offices, robotics centers, material/equipment centers, and Technical Research Institute

*10 Calculated using the Biznet procurement system for office supplies, etc.

*11 The greenhouse gas emission categories prescribed in the Greenhouse Gas Protocol developed as the international standard for calculating and reporting the volume of greenhouse gas emissions

Scope 1: Direct emissions (caused by business activities)

Scope 2: Indirect emissions (caused by energy used (electricity, heat, etc.) for business activities

Scope 3: Other indirect emissions caused by supplier activities, product use, etc.

*12 Comparison with CASBEE reference figures. Data cover all applications

*13 Figures assume a useful building life of 35 years

*14 Conversions for reductions in volume used from the previous fiscal year are as follows:

Electricity (27yen/kWh) (Source: Price Guidelines for New Electricity Rates by the Home Electric Appliances Fair Trade Conference)

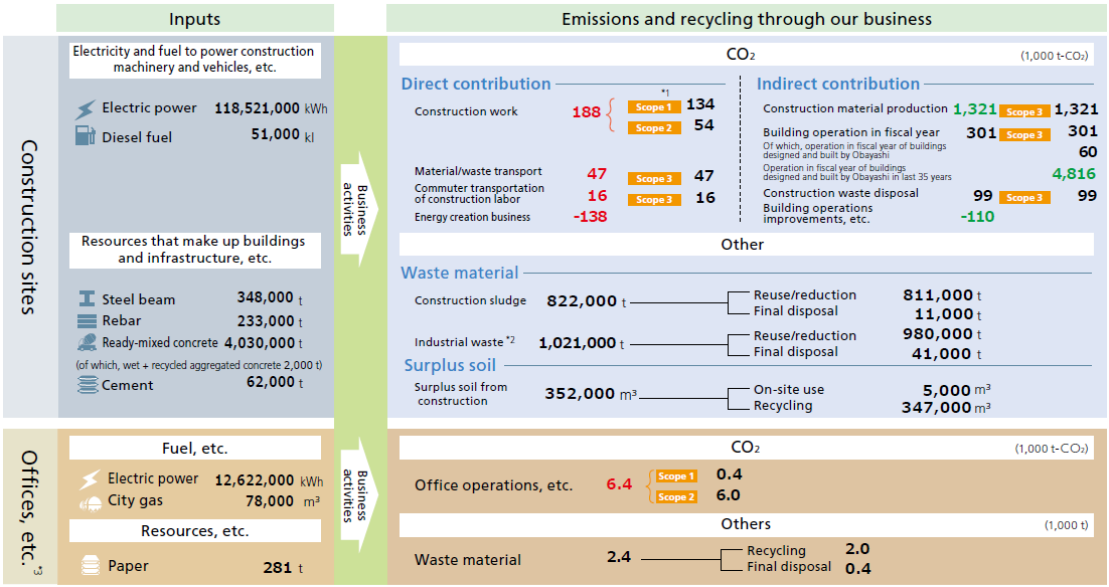
Diesel fuel (118,000yen/kl) , Kerosene (89,000yen/kl) (Source:2020.3 issue of Sekisan Shiryo magazine, published by the Economic Research Association)

*15 Waste materials reused at construction sites have been converted to construction material equivalents as follows:

Construction sludge ➡ Backfilling soil (4,025yen/m3)

Concrete debris ➡ Recycled crushed stone (1,125yen/m3) (Source: 2020.3 issue of Sekisan Shiryo magazine, published by the Economic Research Association)

Material Flow



Direct contribution CO_2 119,000 t-CO_2 (Total of above red numbers) Indirect contribution CO_2 6,027,000 t-CO_2 (Total of above green numbers)

*1 Scopes are categories of GHG emissions prescribed by the GHG Protocol. (The GHG Protocol was developed as an international standard for calculating and reporting GHG emissions)
Scope 1: Direct emissions from business activities
Scope 2: Indirect emissions associated with the use of energy (electric power, heat, etc.) in business activities
Scope 3: Other indirect emissions caused by supplier activities, product use, etc.
*2 Excludes ordinary waste, construction sludge, specially controlled industrial waste, and waste containing asbestos.
*3 Applicable facilities are the Head Office, Tokyo Main Office, Osaka Main Office, branch offices, machinery plants, material/equipment centers, Technical Research Institute, etc.

Applicable Group Companies (Exclude companies that their business run in Obayashi's office)

Construction Business: Obayashi Road Corporation, Naigai Technos Corporation, Obayashi Facilities Corporation, Oak Setsubi Corporation, Tokken Corporation, Soma Environmental Service Corporation, ATELIER G&B Co., and Obayashi Design Partners

Real Estate Business: Obayashi-Shinseiwa Real Estate Corporation

Other Businesses
Information ▶ Oak Information System Corporation
Golf course ▶ Ibaraki Green Co., Ltd.
Restaurant ▶ Le Pont de Ciel Co., Ltd.
Renewable energy generation ▶ Obayashi Clean Energy Corporation

Environmental policy includes support for Group companies in order to lower the environmental impact of the entire Obayashi Group. In line with this policy, the Group Company Environmental Activity Liaison Conference was formed to deal with issues for the entire Group. In addition, individual companies use their business activities for developing recyclable materials and increasing their use, combating the heat island effect, conserving energy for building operations, and other purposes.

Basic Unit for Calculating Environmental Protection Benefits (FY2020.3)

・For the cost of pollution prevention and protecting the global environment, the portion of these costs accounted for by construction sites is estimated by using figures from sample sites, construction sales during the fiscal year and other data.
・The portion of resource recycling costs accounted for by the processing and disposal of construction waste materials from construction sites is the actual amount according to the manifestmultiplied by an average processing unit price for each item at individual branches (cost includes construction sites of Obayashi alone and all costs at joint construction projects where Obayashiis the main contractor).

	Electric Power	Diesel fuel	Kerosene	Gas
Primary energy*1	9.97MJ／kWh	37.7MJ／L	36.7MJ／L	44.9MJ／m3
CO2*2	By electric utility company*4	2.58kg-CO2／L	2.49kg-CO2／L	2.23kg-CO2／Nm3
SOX*3	0.335	0.069	0.007	0
	g-SOX／kWh	g-SOX／MJ		
NOX*3	0.778	0.463	0.069	0.058
	g-NOX／kWh	g-NOX／MJ		

*1 Electricity: Ordinance for Enforcement of the Act on the Rational Use of Energy. All others except electricity: Calculation Methods and Emission Coefficients for Calculation, Report and Announcement Systems (after 2014.3 revisions)
*2 Calculation Methods and Emission Coefficients for Calculation, Report and Announcement Systems (after 2014.3 revisions)
*3 Building Life Cycle Assessment Guidelines, Architectural Institute of Japan (after 2013.2 revisions)
*4 Emission coefficients for individual electric utilities

Power companies	Effective emission factor (kg-CO2 ／kWh)	Power companies	Effective emission factor (kg-CO2 ／kWh)
Hokkaido Electric Power Co., Inc.	0.643	The Chugoku Electric Power Co., Inc.	0.618
Tohoku Electric Power Co., Inc.	0.522	Shikoku Electric Power Co., Inc.	0.500
TEPCO Energy Partner, Inc.	0.468	Kyushu Electric Power Co., Inc.	0.319
Chubu Electric Power Co., Inc.	0.457	The Okinawa Electric Power Co., Inc.	0.786
Hokuriku Electric Power Company	0.542	Alternative	0.488
The Kansai Electric Power Co., Inc.	0.352		

CO2 emission coefficients for individual electric utilities (Announced on 2020.01.07), Ministry of the Environment

Social

Quality / Human Resources /
Health & Safety /
Social Contribution / Human Rights

Quality

Basic Policy

Policy

Quality Policy

https://www.obayashi.co.jp/en/sustainability/quality.html#section1

Management

Promotion System

Quality Management System (QMS) Promotion Framework

https://www.obayashi.co.jp/en/sustainability/quality.html#section1

Strategy, Materiality and KPI

Strategy

Basic Goals

https://www.obayashi.co.jp/en/sustainability/quality.html#section1

Materiality

Enhance Quality Control and Technological Capabilities

【Action Plan】

- Pursure reliable quality
- Use technologial capabilities to further enhance productivity
- Maintain good construction management system

KPI

■ Persue reliable quality

- Customer satisfaction rate

100% by FY2022.3

■ Maintain good construction management system

- Ratio of workers with important construction management credentials*1

*1 Professional engineer, registred first-class architect, and registered firtst-class construction management engineeer (building construction, civil engineering, plumbing work, and electricity)

Maintain at least **80**% by FY2022.3

■ Use technological capabilities to further enhance productivity

- Construction business productiivity increase rate (vs.FY2017.3)

At least **10**% by FY2022.3

ESG Performance

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
KPI	Customer satisfaction rate	%	**-**	**-**	**-**	**-**	**84.6**
KPI	Construction business productivity increase rate (vs. FY2017.3)	%	**-**	**-**	**-**	**-**	**2.0**
KPI	Ratio of workers with important construction management credentials*1	%	**-**	**81.6**	**81.8**	**81.1**	**80.2**
	Capital expenditure on R&D of construction technologies	billion JPY	**-**	**10.3**	**19.1**	**22.3**	**23.1**
	Capital expenditure on M&As and others	billion JPY	**-**	**0.5**	**25.6**	**0.9**	**1.3**

*1 Professional engineer, registered first-class architect and registered first-class constrution management engineer (building construction, civil engineering, plumbing work, and electricity)

Human Resources

Basic Policy

Policy	We ensure the health and safety of all employees and workers in a work enironment where they can exercise their unique character and talents and feel motivated.

Management

Promotion System	Work Style Reform Project Team

Strategy, Materiality and KPI

Strategy

First action plan on Japan's Act on Promotion of Women's Participation and Advancement in the Workplace (Targets for 2024)

Ratio of female managers **10**% Ratio of female engineers **10**%

Materiality

Develop and Retain Human Resources

【Action Plan】

- Promote work style reform
- Promote diversity

KPI

■ Promote work style reform

- Ratio of practice of closing construction sites eight days out of every four-week period

  100% by FY2022.3

- Ratio of eligible male employees taking childcare leave or other leave for the propose of childcare

  15% by FY2022.3

■ Promote diversity

- Ratio of employment of people with disabilities

  At least **2.4**% by FY2022.3

- Ratio of female managers

  10% by FY2024

- Ratio of female engineers

  10% by FY2024

ESG Performance

▶ Human Resource Data

(As of fiscal years ended March 31)

	Unit		FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Basic Information							
Number of employees	person	Consolidated	**13,688**	**14,094**	**14,359**	**14,739**	**14,993**
	person	Non-consolidated	**8,402**	**8,524**	**8,609**	**8,753**	**8,829**
		male	7,110	7,213	7,285	7,375	7,425
		female	1,292	1,311	1,324	1,378	1,404
Number of employees by age	person	Under 30years old	1,415	1,455	1,444	1,471	1,516
		30-39years old	1,645	1,730	1,833	1,964	2,035
		40-49years old	3,105	2,927	2,625	2,297	2,034
		50-59years old	2,150	2,325	2,618	2,912	3,134
		over 60years old	87	87	89	109	110
Average age of employees	age		**42.3**	**42.3**	**42.4**	**42.5**	**42.6**
		male	42.2	42.2	42.3	42.4	42.5
		female	42.7	42.8	43	43.1	43.1
Average years of employment	year		**17.2**	**17.1**	**17.2**	**17.2**	**17.2**
		male	16.9	16.8	16.9	17	17.0
		female	18.5	18.5	18.6	18.3	18.1
Number of new employees*2	person		**267**	**294**	**279**	**280**	**275**
		male	228	247	234	231	226
		female	39	47	45	49	49
Number of mid-career recruits	person		**51**	**27**	**37**	**43**	**48**
		male	46	27	37	38	45
		female	5	0	0	5	3
Number of contract employees	person		**1,086**	**1,067**	**984**	**864**	**825**
Average annual salary	JPY		**9,150,379**	**9,508,041**	**10,461,547**	**10,526,558**	**10,577,092**
Number of turnover of regular recruits*3	person		**51**	**50**	**48**	**86**	**103**
		male	40	39	34	66	76
		female	11	11	14	20	27
Turnover ratio of regular recruits*4	%		**2.2**	**4.0**	**2.2**	**1.4**	**3.2**

*2 Figures under each year are the ratio of those among regular recruits who resigned within three years of hire.

*3 Includes turnover due to other than personal reasons.

*4 Figures are ratio of turnover of new employees of three years ago who quit the Company within three years.

(As of fiscal years ended March 31)

	Unit		FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Equal Opportunity and Diversity							
Number of managers (of which, number of senior managers)	person		**4,920(915)**	**5,028(995)**	**5,093(1,094)**	**5,126(1,109)**	**5,160(1,226)**
		male	4,603(911)	4,649(991)	4,685(1,090)	4,674(1,103)	4,698(1,218)
		female	317(4)	379(4)	408(4)	452(6)	462(8)
		foreign	1(0)	1(0)	3(0)	5(0)	7(0)
Number of directors (of which, number of executives)	person		**63(47)**	**66(50)**	**67(52)**	**65(50)**	**67(52)**
		male	62(46)	65(49)	66(51)	64(49)	67(52)
		female	0	0	0	0	0
		foreign	1(1)	1(1)	1(1)	1(1)	0(0)
KPI Ratio of female managers	%		**6.4**	**7.5**	**8.0**	**8.8**	**9.0**
KPI Ratio of female engineers	%		**8.6**	**8.8**	**9.0**	**9.3**	**9.5**
Number of foreign national employees	person		**2,776**	**2,999**	**3,063**	**3,269**	**3,322**
		Group Companies	2,751	2,974	3,041	3,246	3,298
		Non-consolidated	25	25	22	23	24
Number of foreign national students			**1**	**2**	**1**	**1**	**2**
Number of people with disabilities	person		**202**	**207**	**200**	**213**	**217**
KPI Ratio of people with disabilities	%		**2.11**	**2.15**	**2.07**	**2.20**	**2.23**
Number of rehired employees	person		**829**	**789**	**705**	**673**	**669**
Ratio of rehired employees*5	%		**90.9**	**88.3**	**88.5**	**92.3**	**93.5**

*5 Applicant rehiring rate is 100%

(As of fiscal years ended March 31)

		Unit		FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Work-life Balance								
Ratio of employees who took their annual paid vacation		%		**37.4**	**41.7**	**43.1**	**43.9**	**41.9**
Yearly average day of yearly paid vacation days taken		day		**-**	**7.9**	**8.1**	**8.3**	**8.4**
Ratio of employees who worked within the target of yearly maximum overtime hours (960 hours/year)		%		**-**	**90.0**	**91.1**	**8.3**	**94.1**
Hours of total working hours per employee		hours/year		**2281.9**	**2242.2**	**2246.7**	**2235.6**	**2,195.0**
KPI	Ratio of practice of closing construction sites eight days out of every four-week period	%		**-**	**-**	**-**	**-**	**23.4**
Number of employees taking childcare leave		person		**41**	**34**	**40**	**37**	**49**
		person	Male	1	1	2	2	4
	On leave*6	%		0.3	0.4	0.6	0.6	1.1
	Who returned to work*7	%		100	100	100	100	100
		person	Female	**40**	**33**	**38**	**35**	45
	On leave*6	%		100	97.3	92.7	100	100
	Who returned to work*7	%		97.3	94.7	100	100	97.1
KPI	Ratio of eligible male employees taking chilcare leave or other leave for the purpose of childcare	%		**-**	**-**	**-**	**-**	**13.5**
Number of employees taking short working hours for		person		**145**	**154**	**146**	**157**	**150**
Number of employees taking nursing leave*8		person		**35**	**47**	**56**	**62**	**57**
Number of employees taking nursing-care leave*8		person		**6**	**20**	**23**	**37**	**16**
Number of employees taking leave for volunteer activities		person		**3**	**3**	**3**	**5**	**2**
Number of employees taking maternity leave		person		**49**	**48**	**39**	**35**	**45**
Spouse-giving-birth vacation*9		person		**157**	**157**	**146**	**193**	**207**

*6 Number of employees taking childcare leave / Number of babies born within the fiscal year.

*7 Number of employees who actually returned to work.

*8 Other than legal nursing leave days and nursing-care leave days, employees benefit from their accumulated vacation day carryovers.

*9 Partners can take a leave when their spouse is giving a birth. (Only accumulated vacation day carryovers were allowed before June 2015.)

Note that we also have leave for public duty, marriage, death in the family, menstruation, paid vacation days for employees working at construction sites, vacations when transferring to other work sites, vacation days awarded to 12th, 22th, 32nd year continuous work employees, and special leaves.

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Career Management						
Hours of employee training per person	**hours/year**	**-**	**-**	**24**	**24**	**24**

Health & Safety

Basic Policy

Policy

Health and Safety Principals and Policies

https://www.obayashi.co.jp/en/sustainability/safeenv.html#section1

Management

Promotion System

Occupational Health and Safety Management System

https://www.obayashi.co.jp/en/sustainability/safeenv.html#section2

Strategy, Materiality and KPI

Materiality

Ensure Occupational Health and Safety

【Action Plan】

- Ensure occupational health and safety

KPI

■ Rigorously apply the Occupational Health and Safety Management System (OHSMS)

- Number of fatal accidents
  0 cases by FY2022.3
- Degree of achievement of theoccupational Health and Safety Management System evaluation items
  At least **90**% by FY2022.3

ESG Performance

Rigorously apply the Occupational Healthe and Safety Management System (OHSMS)

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
KPI	Number of fatal accidents *include skilled workers on construction sites	cases	-	3	1	4	1
KPI	Degree of achievement of the Occupational Health and Safety Management System evaluation items	%	-	-	-	-	83.3

Status of Occupational Accidents at Construction Site

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Accident frequency rate*10		0.67	0.47	0.53	0.57	0.43
Severity rate*11		0.11	0.25	0.11	0.32	0.10
Number of accidents resulting in four or more lost workdays	cases	68	47	51	58	44
Ratio of employees completing stress assessment	%	-	68.6	89.0	93.3	94.5

*10 Number of accidental labor deaths and injuries recorded for every 1 million labor hours

*11 Number of work days lost to workplace accidents recorded for every 1,000 labor hours

Social Contribution

Basic Policy

Policy	Obayashi Social Responsibility Policy https://www.obayashi.co.jp/en/sustainability/communities.html#section1

Strategy, Materiality and KPI

Strategy	Main Priorities ● Global Environmental Responsibility ● Disaster Readiness and Post-Disaster Reconstruction ● Good Citizenship in Local Communities ● Inspiration for the Next Generation https://www.obayashi.co.jp/en/sustainability/communities.html#section1

ESG Performance

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Costs of Social Initiatives (non-consolidated)	million JPY	711	973	1,080	805	827
Ratio of employee participated in matching gift	%	11.2	14.0	12.5	12.1	11.6

Human Rights

Basic Policy

Policy	Obayashi Statement on Human Rights https://www.obayashi.co.jp/en/sustainability/employee.html#section1

Management

Promotion System	Human Rights Awareness Promotion Committee https://www.obayashi.co.jp/en/sustainability/employee.html#section1

ESG Performance

	Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
Ratio of employees who participated human rights awareness training	%	-	100	100	100	100

Governance

Basic Policy

Policy

Obayashi believes that transparency and sound management, along with a strong corporate governance framework, are critical to maintaining society's trust. We enhance corporate governance also to achieve sustainable growth and greater corporate value over the medium to long term. Specific initiatives include transparent, fair, rapid, and resolute decisionmaking. Such decision-making is always based on the principles of Japan's Corporate Governance Code set out by the Tokyo Stock Exchange, laws and regulations, and society's expectations.

Management

Promotion System

Management Structure

https://www.obayashi.co.jp/en/company/governance/statement.html#section1-1

Corporate Ethics Promotion Framework

https://www.obayashi.co.jp/en/sustainability/ethics.html#section1

Risk Management System Chart

https://www.obayashi.co.jp/en/company/governance/riskmanagement.html#section1

Earthquake Task Force Communication System Chart

https://www.obayashi.co.jp/en/company/governance/riskmanagement.html#section3

Strategy, Materiality and KPI

Guideline

Obayashi Group CSR Procurement Guidelines

https://www.obayashi.co.jp/en/sustainability/suppliers/csr_procurement.html

Materiality

Implement Rigorous Compliance

【Action Plan】

- Promote the Corporate Ethics Program
- Practice rigorous information security

Conduct Responsible Supply Chain Management

【Action Plan】

- Promote CSR procurement
- Train and support skilled workers

KPI

■ Promote the Corporate Ethics Program

- Ratio of employees taking corporate ethics program

100% by FY2022.3

■ Promote CSR procurement

- CSR procorement guidelines comprehension questionnaire response rate

100% by FY2022.3

- Construction materials green procurement rate

55% or higher by FY2022.3

■ Practice rigorous information security

- Ratio of employees taking informantion security training

100% by FY2022.3

■ Train and support skilled workers

- Number of Certified Exellent Site Superisors / Excellent Operators

More than previous fiscal year

- Number of persons completing training at the Obayashi Rin-yu-kai Vocational Training School

More than previous fiscal year

ESG Performance

		Unit	FY2016.3	FY2017.3	FY2018.3	FY2019.3	FY2020.3
K P I	Ratio of employees taking corporate ethics training	%	**100**	**100**	**100**	**100**	**100**
Ratio of employees taking anti-bribery training		%	**100**	**100**	**100**	**100**	**100**
Ratio of main affiliated companies taking corporate ethics training		%	**100**	**100**	**100**	**100**	**100**
K P I	Ratio of employees taking information security training	%	**-**	**97.9**	**92.0**	**92.0**	**99.3**
K P I	CSR procurement guidelines comprehension questionnaire response rate	%	**-**	**-**	**-**	**-**	**73**
K P I	Construction materials green procurement rate	%	**49**	**41**	**43**	**43**	**43**
K P I	Total number of Certified Excellent Site Supervisors / Excellent Operators	person	**237**	**346**	**389**	**427**	**456**
K P I	Number of persons completing training at the Obayashi Rin-yu-kai Vocational Training School	person	**22**	**18**	**42**	**93**	**74**

Materialites, Action Plans, Targets and Results for KPIs

	Action plan	KPI	Results for FY2020.3	Targets for FY 2021.3	Targets for FY 2022.3
E	**Establish an environmentally responsible society**				
	Promote environmentally friendly businesses	Ratio of design and construction projects (of 2.000m2 and up) with CASBEE ranking of A or higher	75%	At least 70%	
		Ratio of sustainability-related capital expenditure to real estate leasing business capital expenditure	92.7%	At least 90%	
	Promote renewable energy business	Electricity generated annually as a result of renewable energy business	255,551MWh	At least 288,000MWh	At least 370,000MWh
	Promote decarbonization	Direct contribution of CO2 emissions reduction rate (vs FY2014.3)	▲55%	85% reduction by FY2031.3	
		Indirect contribution of CO2 emissions reduction rate (vs FY2014.3)	▲20%	25% reduction by FY2031.3	
	Contribute to realizing a recycling-oriented society	Emissions of construction waste material per unit value of completed construction work	178t/billion yen	No more than 140t/billion yen	
S	**Enhance quality control and technological capabilities**				
	Pursue reliable quality	Customer satisfaction rate	85.4%	At least 90%	100%
	Use technological capabilities to further enhance productivity	Construction business productivity increase rate (vs FY2017.3)	2.0%	At least 10% by FY2022.3	
	Maintain good construction	Ratio of workers with important construction management credentials: professional engineer, registered first-class architect, and registered first-class construction management engineer (building construction, civil engineering, plumbing work, and electricity work)	80.2%	Maintain at least 80%	
	Ensure occupational health and safety				
	Rigorously apply the Occupational Health and Safety Management System (OHSMS)	Number of fatal accidents	1 cases	0 cases	
		Degree of achievement of the Occupational Health and Safety Management System evaluation terms	83.3%	At least 90%	
	Develop and retain human resources				
	Promote work style reform	Ratio of practice of closing construction sites eight days out of every four-week period	23.4%	At least 40%	100%
		Ratio of eligible male employees taking childcare leave or other leave for the purpose of childcare	13.5%	15%	
	Promote diversity	Ratio of employment of people with disabilities	2.2%	2.4%	At least 2.4%
		Ratio of female managers	9.0%	10% by FY2024	
		Ratio of female engineers	9.5%	10% by FY2024	
G	**Implement rigorous compliance**				
	Promote the Corporate Ethics Program	Ratio of employees taking corporate ethics training	100%	100%	
	Practice rigorous information security management	Ratio of employees taking information security training	99.3%	100%	
	Conduct responsible supply chain management				
	Promote CSR procurement	CSR procurement guidelines comprehension questionnaire response rate	73%	100%	
		Construction materials green procurement rate	43.1%	50% or higher	55% or higher
	Train and support skilled workers	Number of Certified Excellent Site Supervisors/ Excellent Operators	456 person	More than previous fiscal year	
		Number of persons completing training at the Obayashi Rin-yu- kai Vocational Training School	74 person		