

## POSCO E&C Corporate Citizenship Report 2019



### Headquarters

180, Daesong-ro, Nam-gu, Pohang, Gyeongsangbuk-do, Korea  
Tel +82. 54. 223. 6114

### Songdo Office

241 Incheon tower-daero, Yeonsu-gu, Incheon, Korea  
Tel +82. 32. 748. 2114

# CONTENTS

## About this report

### Report overview

POSCO Engineering and Construction Co., Ltd. has been publishing annual sustainability reports since the Environment Report was first issued in 2010. This year’s report has been renamed as the “Corporate Citizenship Report” to portray the management philosophy of POSCO Group, and has selected seven areas to promote, specialized for POSCO E&C, within the pillars of business, society, and people to report specific practices and achievements. The Company has also conducted interviews with stakeholders representing each area of corporate citizenship to report a vivid picture of the endeavors made by POSCO E&C in practicing corporate citizenship. POSCO E&C provides consolidated reports on its business areas such as plant, infrastructure and urban development & architecture as well as its key portfolios together with its achievements in promoting corporate citizenship to facilitate the understanding of stakeholders.

### Report criteria

This report has been created to comply with the key corresponding method of the Global Reporting Initiative(GRI) Standards, a global sustainability reporting guideline, and reports the details of activities performed to achieve the ISO 26000(Social Responsibility) as well as the UN Sustainable Development Goals(SDGs).

### Reporting period and boundaries

The report underlines activities and performances of POSCO E&C headquarters and 91 construction sites in Korea marked between January 1 and December 31, 2019, and some qualitative performances are displayed with three years of records to enhance comparability. Management performance includes the financial performance of the merger standard.

### Report assurance

This report is assured by a third-party assurance agency, Lloyd’s Register, to secure the reliability of reported activities and achievements.

Team	CSR Group, Communication Office, POSCO E&C
Address	241 Incheon tower-daero, Yeonsu-gu, Incheon, Korea
Telephone	+82. 32. 748. 3737
Website	www.poscoenc.com

## Introduction

CEO MESSAGE	4
About Company	6
2019 Corporate Citizenship Highlights	10

## Business Portfolio

Plant	16
Infrastructure	24
Urban Development & Architecture	32

## Responsible Corporate Citizenship

Corporate Citizenship at POSCO E&C		42
Alignment of Corporate Citizenship with ESG Criteria and UN SDGs		44
BUSINESS	Ensuring competitive construction technology	46
	Achieving highest product and service quality for customer satisfaction	50
	Creating ethical, fair and mutually beneficial values	54
SOCIETY	Leader in eco-friendly construction	60
	Sharing value with the community	64
PEOPLE	Prioritizing site safety	72
	Vibrant corporate culture	76

## Sustainability Management

ESG Management	84
Corporate Governance	85
Risk Management	86
Ethical Management	87
Communication with Stakeholders and Materiality Test	90

## Appendix

Performance Data	93
GRI Contents Index	98
Greenhouse Gas Emissions Assurance Report	101
Third-Party Assurance Report	102
List of Awards and Affiliated Associations	104



# CEO MESSAGE



Dear Stakeholders of POSCO E&C

Since its incorporation in 1994, POSCO E&C has engaged in various business sectors including steel and power plant, infrastructure and buildings, and we strive for excellence and competitiveness in the global construction market. As a part of the POSCO group, we commit to “Corporate Citizenship: Building a Better Future Together” to fulfil our role in the community to bring a greater value in the areas of Business, Society and People.

**Business with POSCO E&C: We create a robust construction business ecosystem together with our business partners**

POSCO E&C shares its smart construction and steel construction material technologies that are core to its technical expertise with its business partners to achieve mutual growth. Leveraging our industry expertise, technical capabilities and business infrastructure, we support our partners in technical, safety and finance areas to realize business symbiosis to achieve better performance together. Furthermore, we will achieve sustainable corporate value by creating a robust business ecosystem for the construction industry.

**Society with POSCO E&C: We pave the way to address social issues to realize a better society**

As a corporate citizen, we pay close attention to local communities to ensure their livelihood. Our dedication in improving residential environment through fire prevention and residential improvement programs, construction academy for secondary school students, and global skilled construction worker training program contributes to enhancing quality of life and provides equal opportunity for the underprivileged. We have expanded our global footprint in 40 countries world-wide and believe that we share the responsibility to participate in solving the regional socio-economic challenges in order to exercise our value as corporate citizen with integrity.

**People with POSCO E&C: We build a happy and rewarding organization seeded with trusting and creative culture**

POSCO E&C believes in creating a safe and enjoyable workplace for the employees results in stronger organizational growth. Safety is POSCO E&C’s top priority, and on-site monitoring programs are activated throughout the project life cycle to ensure elimination of blind spots. Such effort has achieved in significant reduction of fatal accidents, recording only one case in 2019. In addition, encouraging open communication and innovation at workplace improved organizational agility, and in turn, notable improvement in employee satisfaction is demonstrated through Great Work Place index. Understanding that mutual trust is fundamental value, we continue to build a happy workplace and inclusive corporate culture for all members of the company.

As an influential member of the society, a corporate citizen must take the lead in tackling social issues to build a better world beyond the pursuit of economic returns. POSCO E&C believes in delivering social value through corporate citizenship programs unique to the construction industry to establish a virtuous cycle for the society. With the publication of Corporate Citizenship Report this year, we seek to “build value together” with all stakeholders, who are our employees, business partners, shareholders, customers, local communities and more, through sharing, cooperation, and mutual growth. We ask for your kind support and encouragement for our steps toward becoming a role model as a global corporate citizen.

May 2020

한 성희

President & CEO of POSCO E&C Han Sung-Hee

# POSCO Group

POSCO Group is composed of group affiliates of a variety of business areas, such as construction, energy, ICT, and new materials, and headed by POSCO, which has paved the way for the steel industry of Korea since 1968. POSCO Group is firmly establishing its presence as a global business group by enhancing its capability through continuous business expansion and innovative technological development.

## POSCO Group Affiliates



## Overview of POSCO

Consolidated Revenue	64 trillion 366.8 billion KRW	Credit Rating	AA+ (Positive)
Consolidated Operating Profit	3 trillion 868.9 billion KRW	S&P	BBB+ (Positive)
Consolidated Crude steel Production	42.95 million ton	Moody's	Baa1 (Stable)

## Management philosophy

Management philosophy	Corporate Citizenship: Building a Better Future Together			
Vision	With POSCO			
Pillars of Activities	<div><div>BUSINESS</div><div>Practice of fairness, transparency, ethics Shared growth Best products &amp; services</div></div>	<div><div>SOCIETY</div><div>Contribution to addressing social issues with empathy Development of local communities &amp; environmental management Participation in philanthropy</div></div>	<div><div>PEOPLE</div><div>Creation of a safe and pleasant work environment Fair HR affairs &amp; stable labor-management relations Diversity and inclusion and improvement of work-life balance at workplace</div></div>	
Talent	Talents with the mindset of action, consideration and creativity			
Code of Conduct	Substance	Execution	Practical	
Core Values	Safety	Win-Win	Ethics	Creativity

# POSCO E&C

Since its inception in 1994, POSCO E&C has promoted portfolios in a variety of fields including steel plants, industrial plants, energy plants, infrastructure, and residential facilities to rank 6th in Korea's construction capacity evaluation and 58th in the ENR list, thereby growing as a comprehensive construction company with global competitiveness.

## Overview

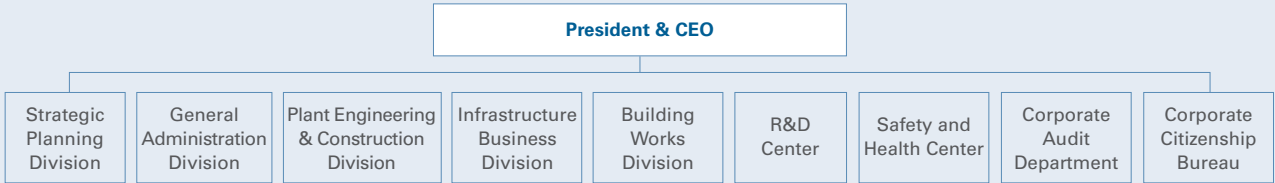
Date of establishment	December 1, 1994	(As of 2019)	
Major businesses	Plant, infrastructure, and construction businesses	Shareholders	
Number of employees	5,555	<div><div>Employees and minority shareholders 7.1%</div><div>Pohang University of Science and Technology 2.1%</div><div>POSCO 52.8%</div><div>The Saudi Asian Investment Company* 38.0%</div></div>	
Credit rating (Korea Investors Service)	Corporate bill A2, Corporate bond A		

## Management Performance

Revenue	2017 70,192	Total Asset	6 trillion 668.6 billion KRW
unit: 100 million KRW	2018 70,280	ENR Ranking	58th
	2019 76,503	Domestic Construction Capacity Evaluation Rankings and Evaluation Amount	6th 7 trillion 779.2 billion KRW
Value of Received Orders	2017 100,435		
unit: 100 million KRW	2018 100,898		
	2019 85,862		

\*Value of Received Orders: Total of domestic and overseas

## Organization Chart



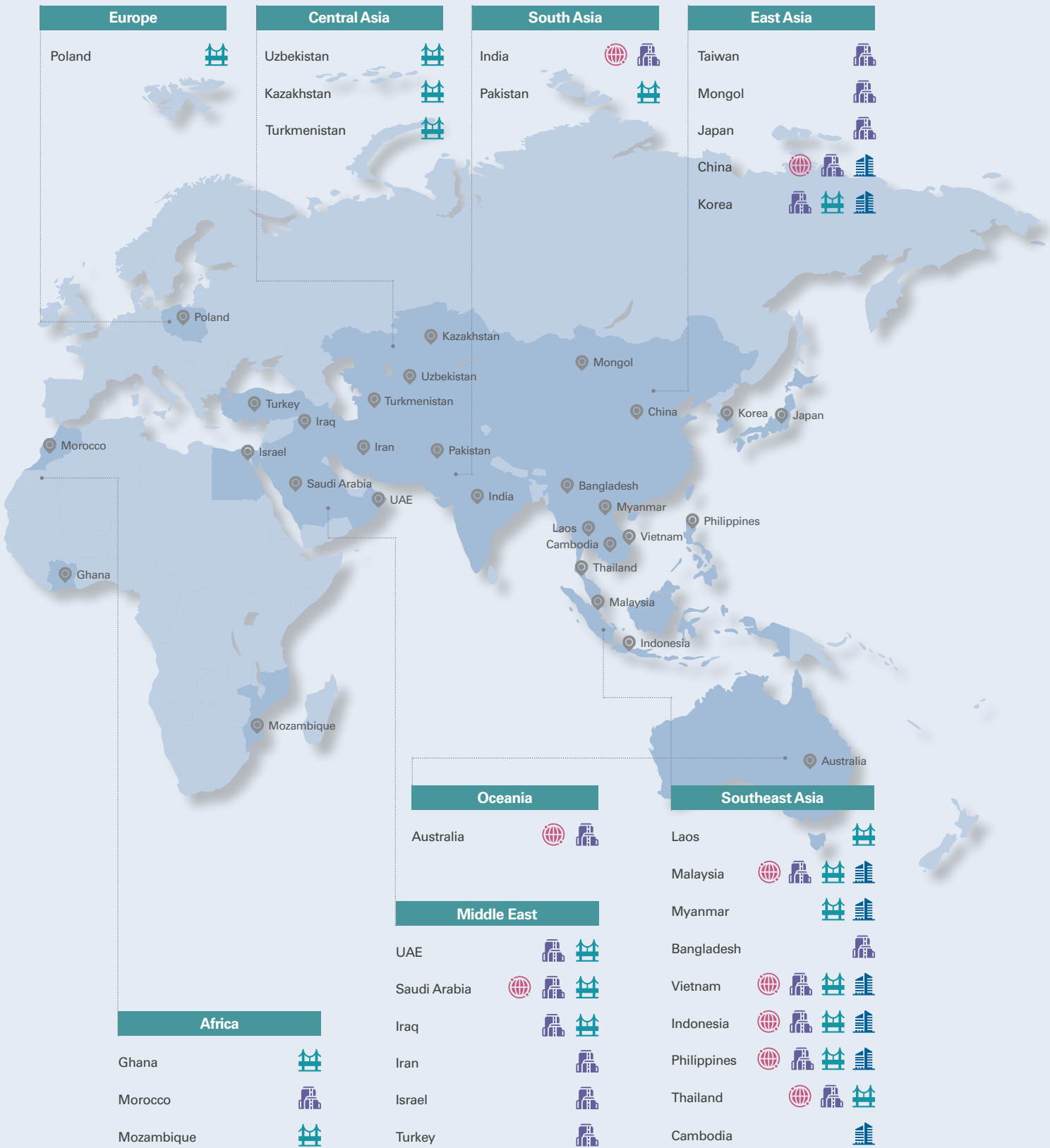
## Mid-term Strategic Direction

Pursuit of qualitative growth with radical reform and differentiated competitiveness				
Strategic direction	Optimization of business structure	Differentiation of technologies and brand competitiveness	Building of internal stability for overseas projects	Practice of the management philosophy of corporate citizenship
Implementation strategy	<div>Expansion of eco-friendly business</div> <div>Focus on private sector infrastructure projects</div> <div>Strengthening real estate development capabilities</div>	<div>Internalization of smart construction</div> <div>Leading the steel building material market</div> <div>Expansion of captive projects</div> <div>Upgrade to upscale brands</div>	<div>Prevention of overseas loss at its source</div> <div>Securing/nurturing experts</div> <div>Improvement of productivity per person</div>	<div>Strengthening of win-win partnerships</div> <div>CS advancement</div> <div>Contribution to environmental improvement</div> <div>Field safety first</div>



# Global Network

POSCO E&C continues to strengthen its global engineering technology through networks built in over 37 countries, growing towards becoming the best global E&C company premised on our differentiated technological edge and extensive experience that we have gained through a number of overseas projects.



## In 37 countries

- 11 corporations
- 6 branches and offices
- 25 project management offices
- (As of April 2020)

Corporation  
 Branches  
 Offices

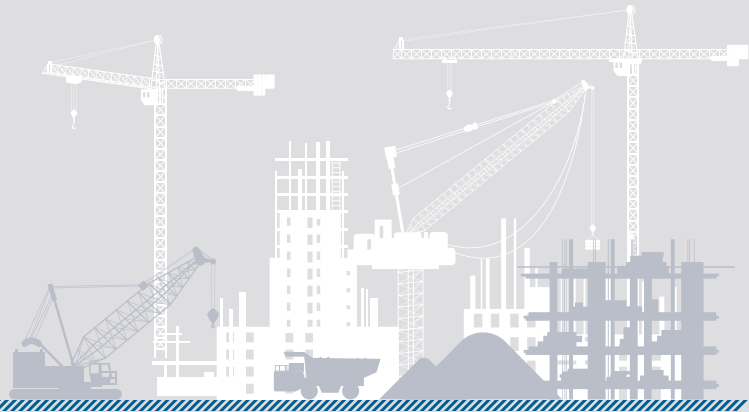
Plant

Infra

Building Works

# 2019 Corporate Citizenship Highlights

POSCO E&C performs responsible projects and activities in the areas of business, society, and people to transform itself into a "Corporate citizenship, Building a better future together."



## Business with POSCO E&C

### Ensuring competitive construction technology

In the era of the fourth industrial revolution, we foster future construction technologies and create value through smart construction.



#### Optimized design technology for LNG storage tanks using POSCO's advanced materials

The world's first design/construction technology for High-Mn\* steel LNG storage tank

\*Mn: Manganese, a metallic raw material



#### MS cable iso-tensioning system for cable-stayed bridges

Achieving Self-Reliance of Core Construction Technology to Apply Uniform Tensile Force on the each strand in Multi-Strand Cable



#### Modular rooftop pre-fab construction technology for apartment building

Construction technology that modularizes rooftop structure to the steel frame and exterior steel panel

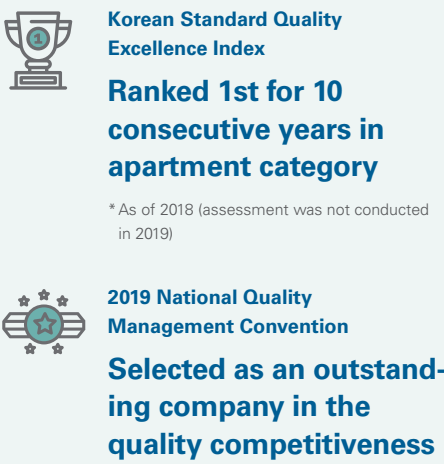
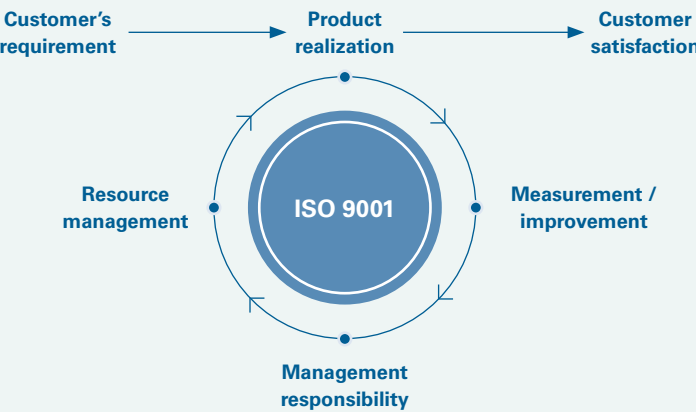


#### High-strength concrete pumping technology for skyscrapers

Package technology that integrates concrete mix design and pumping equipments for pumping efficiency and stable quality

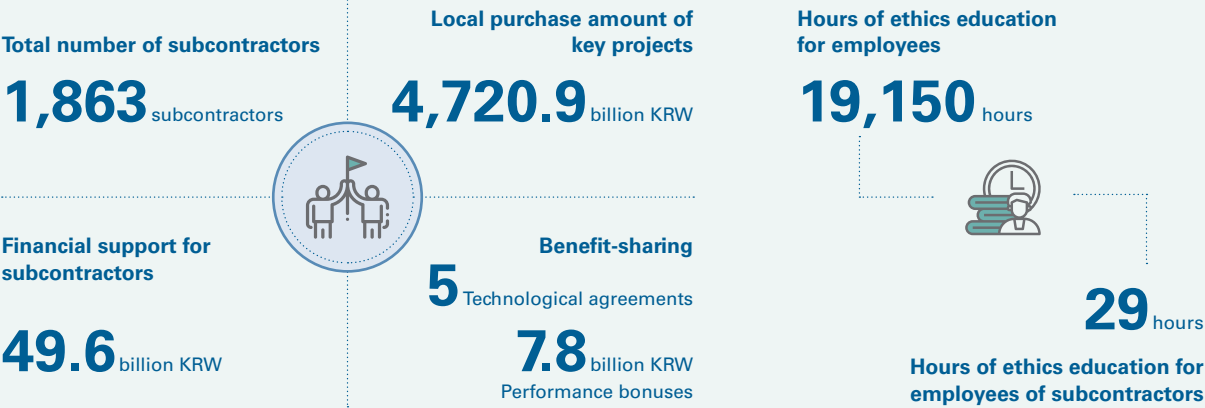
### Achieving highest product and service quality for customer satisfaction

We minimize defects and quality risks during the use of our products through quality inspections of each vulnerable process and diagnoses of material quality built on quality management systems (ISO 9001).



### Creating ethical, fair and mutually beneficial values

The foundation of ethical management creates a transparent and fair corporate culture, and the financial aid provided to small and medium subcontractors to secure liquidity as our business partners and performance-sharing system and the enhanced technical cooperation through revitalization of performance-sharing system brings forth the value of co-existence and co-prosperity.







Society with POSCO E&C

People with POSCO E&C



Sharing value with the community

We engage in social contribution activities through cooperation with public organizations and actively take part in addressing social issues arising in the local communities, thereby contributing towards the development of local communities.

**Overseas volunteer activities**  
49 activities in 18 countries(accumulative)

**Overseas medical aid benefited**  
16,521 persons in 12 countries(accumulative)

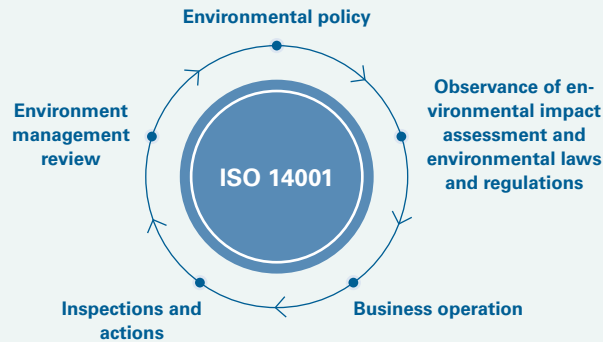
**Nurturing of youth skilled construction workers overseas**  
341 persons(accumulative)

**Number of beneficiary of residential environment improvement activities for preventing fire**  
2,163 households(accumulative)

**1% sharing fund**  
6.84 billion KRW(accumulative)  
\* Based on the sum of contributions made by employees and the amount supported by the matching grant

Leader in eco-friendly construction

We continue to minimize the environmental impact generated by construction sites through the environmental management system certification (ISO 14001), compliance with environmental laws and regulations, and seamless communication with local residents.



**Energy consumption**  
933.97 TJ

**Waste recycling ratio**  
69.1 %

**Greenhouse gas emissions intensity**  
6.1311 tCO<sub>2</sub>e/billion KRW

**Violation of environmental laws**  
0 violations

Vibrant corporate culture

We foster talented individuals with expertise who will lead the way towards innovative growth and reinforce the satisfaction of our employees in a variety of areas such as improvement of organizational culture and welfare to create a happy and rewarding corporate culture.



\*P-GWP (POSCO-Great Work Place): A survey on the assessment of the satisfaction in the organization and work, and the level of work flow conducted by POSCO Group

Prioritizing site safety

We conduct intensive analyses of the root causes of every accident based on our safety and health management certification(ISO 45001) to prevent the recurrence of similar accidents and take the initiative in pursuing safety management and activities to realize safe and happy construction sites for our employees and the workers of subcontractors.



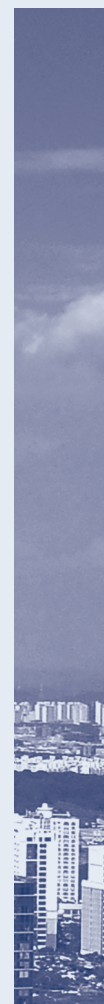
\* Estimate for 2019

Leading Safety man-hour without lost time accident certification performances in overseas project

Saudi Arabia	
Aramco Sulfur Railcar Loading Facilities	20 Mil Hrs
Yanbu Rehabilitation and Expansion of Sewage Water Treatment Plant (SWTP)	5 Mil Hrs
Philippines	
Masinloc Coal-Fired Thermal Power Plant	20 Mil Hrs
Iraq	
Khabat Thermal Power Plant and Bazyan Substation	13 Mil Hrs
Thailand	
PTT Phenol Train II	10 Mil Hrs
PTT LNG Phase II	10 Mil Hrs
Heavy Gas to Olefins Feedstock	6 Mil Hrs
Chile	
Cochrane Coal-Fired Power Plant	7 Mil Hrs
Campiche Coal-Fired Power Plant	6 Mil Hrs
Angamos Coal-Fired Power Plant	5 Mil Hrs



# Business Portfolio



Plant ————— 16

Infrastructure ————— 24

Urban Development & Architecture ————— 32



# Plant

The plant business requires integrated abilities in a range of fields such as design, construction, engineering, manufacturing, and installation of mechanical facilities, and repair and maintenance. It is essential to be equipped with planning capabilities, technological abilities, capital strength, and project management capabilities that are above a certain level, and the ability to perform quickly and accurately allows for the stable operation of projects through reduced construction period and saved costs.

The international plant business is characterized by continuous variation depending on the fluctuation in oil prices and global economic climate, but new business opportunities are expected to arise as the demand for plants associated with resource development increases in Southeast Asia, Africa, and Central and South America. The plant business consists of a wide variety of markets, including petrochemical, gas, power generation, and steel plants. Among them, petrochemical and gas plant markets are expected to continuously receive orders fueled by growth of the Middle East, Africa, and Latin America. The demand in the clean energy gas market is expected to rise as stricter regulations on carbon dioxide emissions from the use of fossil fuels are emerging as a major environmental issue.

POSCO E&C, which has built steel mills in Pohang and Gwangyang for POSCO, the world's most competitive steel company for 10 years in a row, is a total solution provider in the steel plant sector, expanding its business to raw material processing/nonferrous sectors based on its experience in carrying out large projects overseas such as CSP integrated steel mill in Brazil and Kraktoa integrated steel mill in Indonesia. Based on its achievement of pioneering the South American power generation market for the first time in the Korean construction industry in 2006, POSCO E&C has recently expanded its presence in Southeast Asia, rising as a powerhouse in the local power generation market. We continue to diversify our plant business areas, going beyond steel/power plants and into industrial/chemical plants through a merger with POSCO Engineering in 2017.

CSP Integrated Steel Plant (Brazil)	
Project period	January 2012 - February 2016
Capacity	3 million tons/year



## 2019 Performance

### Plant business

Revenue		1,461.0billion KRW
Value of received orders		1,774.3billion KRW



Steel Plants

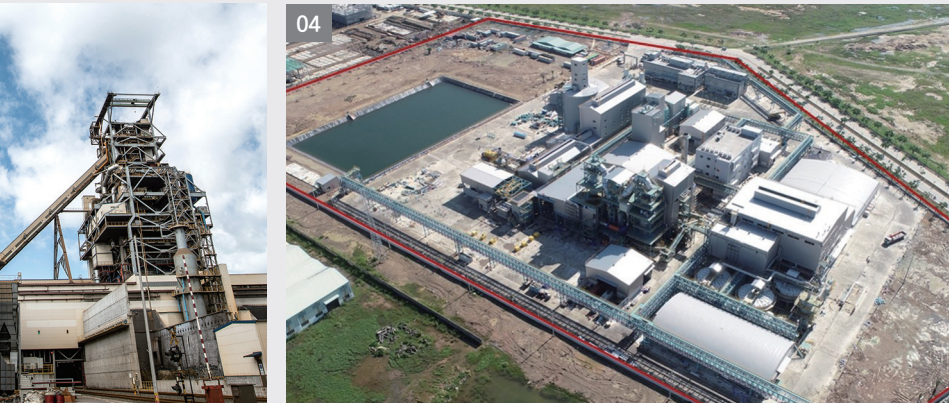


01  
Krakatau Integrated Steel Plant  
(Indonesia)

Project period	July 2011 - December 2013
Capacity	3 million tons/year

04  
Zinc Oxide Recycling Plant of  
Korea Zinc Group (Vietnam)

Project period	December 2017 - July 2019
Capacity	100,000 tons/year



02  
Formosa Steelworks (Vietnam)

Project period	August 2013 - November 2015
Capacity	5.1 million tons/year Hwaseong(COG) 150,000 NM <sup>3</sup> /h Raw materials: 7 million tons/year

05  
POSCO Gwangyang No.4 HRM  
(Korea)

Project period	December 2010 - August 2014
Capacity	3.5 million tons/year

03  
FINEX(No.3), Pohang Steelworks  
(Korea)

Project period	June 2011 - November 2013
Capacity	2 million tons/year

06  
IISCO Blast Furnace (India)

Project period	January 2007 - December 2010
Capacity	1.4 million tons/year

Resource Plants



01  
Moolarben Soft Coal Plant (Australia)

Project period	February 2016 - August 2017
Capacity	12 million tons/year

02  
FINEX(No.3), Raw Material Treatment  
Facility (Korea)

Project period	October 2011 - September 2013
Facility capacity	60,000 tons, three units

03  
Silo, Gwangyang Works Raw Material  
Treatment Enhancing Yard (Korea)

Project period	December 2009 - December 2012
Facility capacity	50,000 tons, 15 units





Industrial Plants



01  
New Plant of STATS ChipPAC Korea (Korea)

Project period	November 2015 - November 2016
Area	147,783m <sup>2</sup>

02  
Arogen Biologics (Korea)

Project period	July 2016 - February 2018
Area	46,289m <sup>2</sup>

03  
Il-Yang Pharmaceutical Eumseong Vaccine Plant (Korea)

Project period	June 2012 - March 2013
Area	14,026m <sup>2</sup>

04  
Kyungdong Navien New Plant & Facilities (Korea)

Project period	April 2012 - March 2014
Area	94,857 m <sup>2</sup>

05  
IASS Holdings Cold & Frozen Warehouse (Korea)

Project period	December 2013 - February 2016
Area	24,379m <sup>2</sup>



Power Plants



01  
Sinpyeongtaek Natural Gas Plant (Korea)

Project period	January 2017 - November 2019
Facility capacity	943 MW Power Line 21 km

02  
Ansan Combined Cycle Plant (Korea)

Project period	October 2012 - October 2014
Facility capacity	834MW

03  
Colon Combined Cycle Power Plant & LNG Facilities (Panama)

Project period	May 2016 - August 2018
Facility capacity	Thermal power plant 391 MW LNG terminal 180,000m <sup>3</sup>

04  
Incheon POSCO Energy Combined Cycle Plant: Units 7-8-9 (Korea)

Project period	October 2012 - December 2015
Facility capacity	400MW, 3 units

05  
Puerto Bravo Thermal Power Plant (Peru)

Project period	February 2014 - May 2016
Facility capacity	154MW x 4



New and Renewable Energy Plants



- 01

**Seokmun Energy Plant (Korea)**  

Project period	January 2015 - July 2017
Facility capacity	38.9MW
- 02

**Busan RDF (refuse-derived fuel) Power Plant (Korea)**  

Project period	October 2010 - October 2013
Facility capacity	25MW
- 03

**Jinyang/Hyunjin Solar Power Plants (Korea)**  

Project period	October 2015 - April 2017
Facility capacity	Constructed 17 solar power plants in 14 cities and counties nationwide

Chemical Plants/LNG Tanks

- 01

**Tanjung Sekong LPG Terminal (Indonesia)**  

Project period	June 2016 - January 2020
Facility capacity	Propane Tank 44,000 MT Butane Tank 44,000 MT
- 02

**Storage Tank and Installation Work, Jeju Base (Korea)**  

Project period	February 2017 - November 2019
Facility capacity	45,000m <sup>3</sup> x 2
- 03

**Samcheok (No. 8-9) LNG Tank (Korea)**  

Project period	March 2012 - June 2016
Facility capacity	Tank 200,000m <sup>3</sup> x 2
- 04

**Gwangyang SNG Plant (Korea)**  

Project period	October 2009 - June 2014
Facility capacity	500,000 tons/day
- 05

**Yeosu MDI (Korea)**  

Project period	October 2015 - November 2017
Facility capacity	Expansion of MDI 10MTA





# Infrastructure

Infrastructure projects take on the characteristic of being public goods such as roads, ports, airports, and railways, which serve as the foundation for people's living and industrial activities. Furthermore, as it is basically an order-based industry, it exhibits a special quality of being significantly affected by government investments in social overhead capital facilities and the level of economic activities in other industries.

The recent policy of expanding social overhead capital facilities by attracting private capital has increased the proportion of private sector participation, and the potential demand for the participation of private capital is expected to increase over the coming years. Although the domestic infrastructure market is projected to experience gradually intensifying competition for orders due to reduced public orders, the government's budget for social overhead capital projects is anticipated to grow in consideration of financial difficulties of local governments and state-owned corporations. As a result, the private SOC projects are expected to undergo continuous expansion and activation. The overseas sector is expected to see steady growth in demand for infrastructure expansion led by developing countries, while public-private joint investment and private-sector investment projects are also anticipated to expand.

POSCO E&C continues to expand its railway sector and business areas such as roads, railways, and bridges. In particular, POSCO E&C is speeding up its advance into overseas markets such as Asia and Central America by leveraging its successful domestic performance. In addition, we are enhancing our ability to engage in global business by securing financing, design, and technical factors with the promotion of strategic alliances with leading companies.

## 2019 Performance

### Infrastructure business



### Nohwa-Gudo Bridge (Korea)

Project period	November 2011 ~ June 2017
Construction scale	1.62 km (offshore ED bridge of 780 m and access road of 840 m)







01	
Capital Region 2nd Ring Expressway (Incheon-Gimpo Expressway) (Korea)	
Project period	March 2012 - March 2017
Construction scale	2nd section 3.6 km, 1 underwater tunnel 3-1 section 3.7 km, 1 JCT
02	
A380 Highway (Uzbekistan)	
Project period	May 2014 - December 2016
Construction scale	85 km in length
03	
Noi Bai-Lao Cai Expressway (Vietnam)	
Project period	July 2009 - November 2015
Construction scale	80 km in length

01	
Jido - Imja Road (Korea)	
Project period	October 2013 - October 2020
Construction scale	Construction scale: length 4.99 km (cable-stayed bridge 1.9 km)
02	
Second Stage of Saemangeum North-South Road (Section 2) (Korea)	
Project period	July 2018 - July 2023
Construction scale	length 4.2 km (cable-stayed bridge 1.3 km)





Railways/New Transportation



01  
Seoul Metropolitan High-Speed Railway (Suseo-Pyeongtaek) 7th Section(Korea)

Project period	January 2012 - December 2016
Construction scale	4.3 km in length

04  
Seongnam-Yeouju Double-Track Railway Depot(Korea)

Project period	December 2012 - March 2017
Construction scale	Inspection facilities for 20 railway vehicles Attraction facilities for 14 vehicles

02  
Ui - Sinseol Light Rail Transit(Korea)

Project period	September 2009 - September 2017
Construction scale	3.1 km in length

05  
Daegu Metro(Korea)

Project period	November 2011 - June 2017
Construction scale	1.62km in length

03  
Busan-Gimhae Light Rail Transit(Korea)

Project period	April 2006 - April 2011
Construction scale	32 km in length

Harbors/Sites

01  
Saemangeum New Port Breakwater (Zone 2)(Korea)

Project period	December 2011 - October 2016
Construction scale	1.9km

02  
Chungju Enterprise City Land Development(Korea)

Project period	June 2008 - August 2012
Construction scale	7,012,760 m <sup>2</sup>

03  
Construction of Gumi High Tech Valley(Stage 1)(Korea)

Project period	April 2012 - January 2021
Construction scale	3,754,467 m <sup>2</sup> , 13 bridges

04  
Ulleung Sadong Port 2nd Phase of Break Water(Korea)

Project period	January 2015 - July 2017
Construction scale	640m 3 Seawater exchange pipes, one secondary work





# Hydroelectric power generation



**01**  
**Hasang Hydro Power Plants (Indonesia)**

Project period	October 2016 - February 2020
Facility capacity	42MW

**02**  
**Lampung Hydro Power Plants (Indonesia)**

Project period	February 2015 - September 2017
Facility capacity	55.4MW

**03**  
**Namlik Hydro Power Plants (Laos)**

Project period	May 2014 - August 2017
Facility capacity	32.25MW x 2



# Environment

**01**  
**Underground Construction  
Bakal Sewage Treatment Plant,  
Anyang (Korea)**

Project period	April 2013 - March 2018
Capacity	250,000 tons/day

**02**  
**Abu Dhabi Water Supply  
System (UAE)**

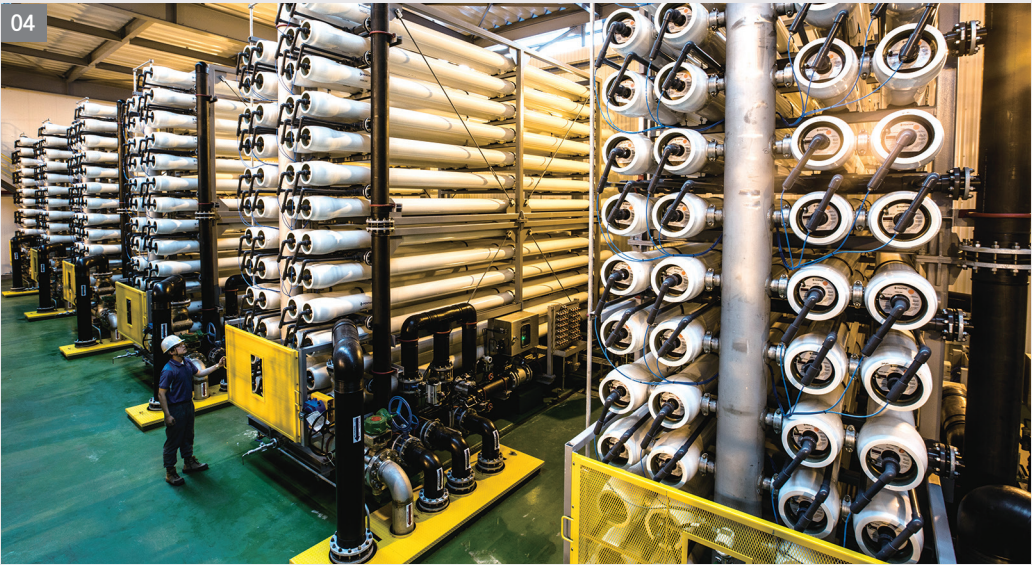
Project period	August 2010 - February 2013
Storage capacity	30,000 tons/day

**03**  
**Krakov Waste-to-Energy Plant  
(Poland)**

Project period	October 2012 - June 2016
Production capacity	10.7MWh/year
Processing capacity	220,000 tons/day

**04**  
**Gwangyang Dongho Bay  
Seawater Desalination Water  
Supply System (Korea)**

Project period	January 2013 - July 2014
Production capacity	30,000 tons/day





# Urban Development & Architecture

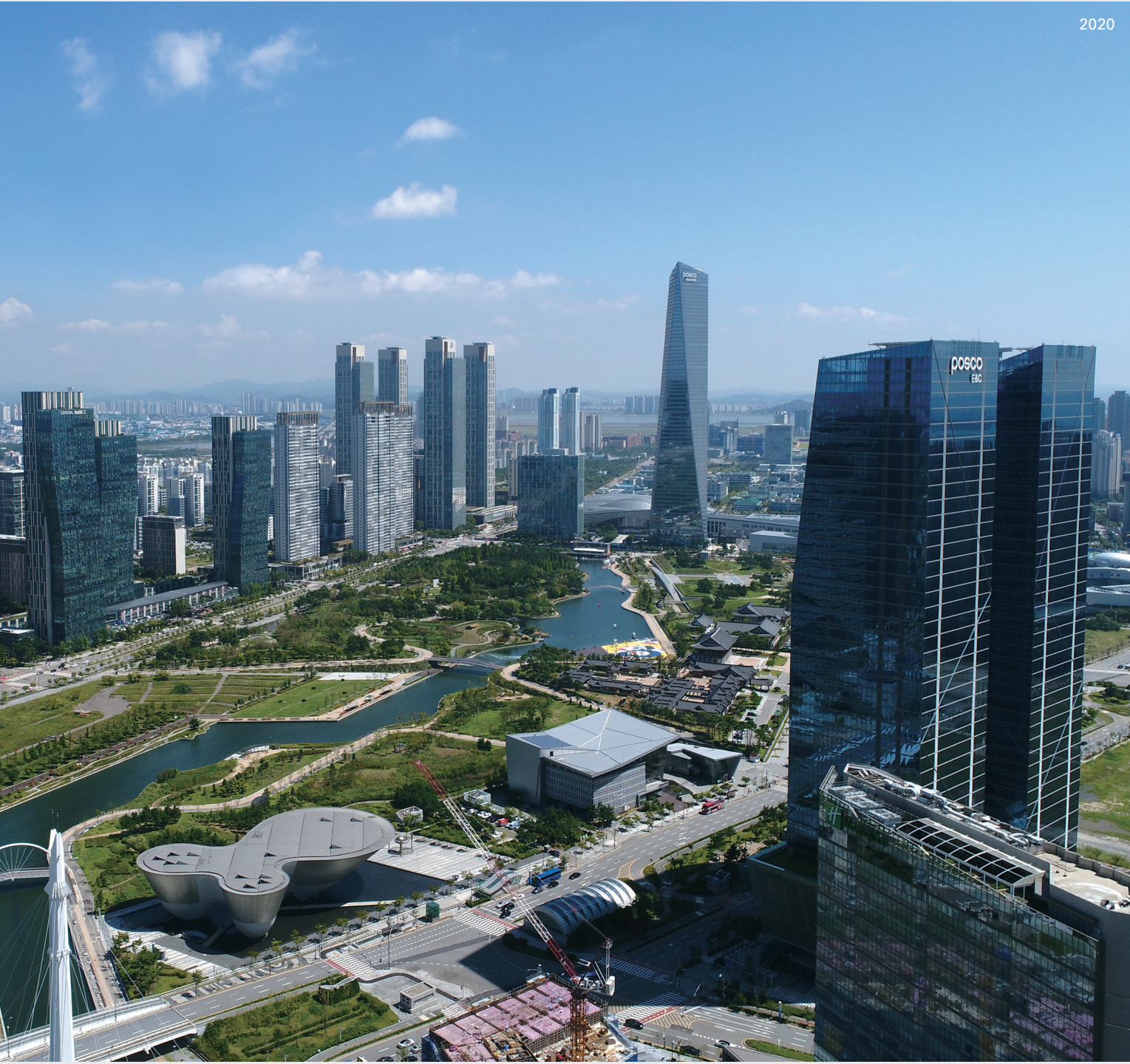
The building business carries out sales and construction of all building products, including office facilities and residential facilities. The building business is affected by economic cycles, especially by changes in demand for public facilities, depending on government policies, and demand for real estate in the Seoul metropolitan area and other areas.

Building projects are becoming increasingly diversified due to large-scale complex development and urban regeneration projects, and the demand for high-tech production facilities will expand due to the creation of new markets fueled by technological development and the requirement for higher efficiency through high-tech facilities, which will likely continue in the mid- to long-term, although their growth may vary depending on short-term economic cycles at home and abroad. Urban development projects are being actively promoted that are relatively short in duration and allow the private sector to lead despite being smaller in scale compared to government-led housing site development projects. Once the metropolitan transportation plan takes shape in 2020, the urban development projects will continue to be conducted primarily in areas where plans are in place to build new transportation networks.

POSCO E&C's building business integrates a series of construction projects, ranging from business planning to land purchasing, financing, marketing, and construction, maintaining a high profile in the construction of skyscrapers and complex commercial facilities and reinforcing its best construction and product composition capabilities in the industry. In particular, we have successfully conducted the development of Songdo International Business District expediting the attraction of international organizations and businesses, and we are continuously promoting new town and private complex development projects based on this achievement. In overseas markets, we have successfully performed development projects in Vietnam, accumulating know-hows in construction technology. In addition to the building business, we are engaged in the remodeling business, leading the market by obtaining approval for the remodeling project of vertical expansion for the first time in Korea.

## 2019 Performance

### Building business



2020

### Songdo International Business District

Project period	2003 - 2025 Scheduled
Area	5,770,553 m <sup>2</sup>



2004

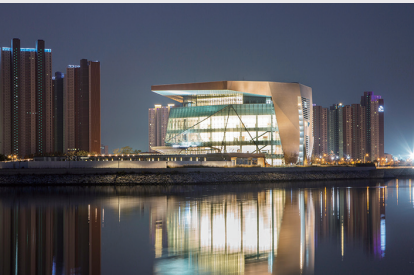


2008



2011

## Progress in Songdo International City development



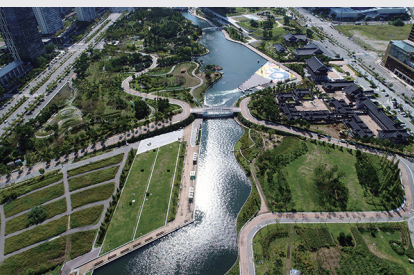
Art Center Incheon



POSCO Tower-Songdo



Jack Nicklaus Golf Club Korea



Central Park



Convensia



Songdo International Business District development project

POSCO E&C is building a “sustainable eco-friendly smart city” through the international business district development project, which serves as the center of Songdo International City. The Songdo International Business District is a project to build an international business city by reclaiming Incheon's waterfront to create 5.8 million m<sup>2</sup> of land, an area twice the size of Yeouido, and developing convention centers, office buildings, residential and commercial facilities, deluxe hotels, golf courses, international schools and international hospitals, and more. The city has incorporated the strengths of major cities throughout the world, such as New York City, Venice, and Paris, to promote urban development, and continues to expand its living infrastructure in fulfilling international standards, evolving further as a global business hub.

Project Outline

Project	Songdo International Business district Development Project	Project Period	2003 – 2025 Scheduled
Project Location	Zones 1 and 3 of Songdo District, Incheon Free Economic Zone (including part of Zones 2 and 4)	Project Operators	NSIC (ACPG 45.6%, POSCO E&C 29.9%, Troika 24.5%)
Area	5.8 million m <sup>2</sup> (1.76 million pyeong)	Development Progress Rate	71.3% (as of December 2019)

Urban Development Concept

Cutting-edge Smart City



· Improving business and quality of life through implementation of U-Life

Eco-friendly Urban Development



· Applying energy saving, resource recycling, improved air quality, and innovative design to develop an eco-friendly city and buildings  
※ The Songdo International Business District acquired verification as an eco-friendly building(LEED) for individual buildings, but also obtained eco-friendly district certification (LEED ND) for the first time in Korea.

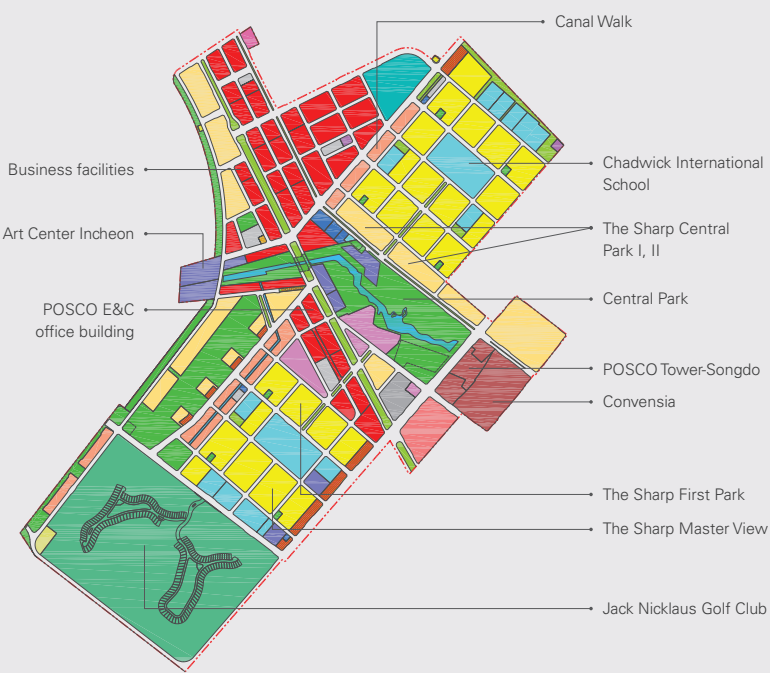
Sustainable Residential Environment



· A compact city that embraces all urban functions including housing, business, commerce, culture, leisure, education, and health care.

\* LEED ND, Leadership in Energy & Environmental Design-Neighborhood Development, United States Green Building Council

Major Infrastructure Performance



Public facilities

- Construction of multipurpose convention center (Convensia)
- Construction of 370,000m<sup>2</sup> Central Park
- Construction of an art center

Business/commercial facilities

- Construction of a 68-story super high-rise business facility(POSCO Tower-Songdo)
- Supply of approx. 19 millionm<sup>2</sup> of commercial facilities

Residential facilities

- Construction of apartment buildings including The Sharp Master View, The Sharp First Park etc.
- Supply of approx. 17,500 households

Educational facilities

- Establishment of Chadwick International School
- Contribution of numerous elementary, middle, and high schools, including Incheon POSCO Academy (autonomous private high school)

Sports facilities

- Construction of 18-hole golf course designed by Jack Nicklaus

Urban Development/Complex Development



01 Haeundae LCT The Sharp (Korea)

Project period	October 2015 - November 2019
Construction scale	5 stories underground and 101 stories aboveground

02 Splendora (Vietnam)

Project period	March 2010 - August 2013
Construction scale	120,000m <sup>2</sup> in gross floor area Apartments: 248 units (B1/16–22F) Villas:136 units Townhouses:117 units

03 Busan Myeongji The Sharp First World (Korea)

Project period	September 2017 - July 2020
Construction scale	3 stories underground and 34 stories aboveground

Residences

01 Songdo The Sharp Central Part I, Songdo The Sharp Central Park II (Korea)

Project period	June 2007 - November 2010, July 2008 ~June 2011
Construction scale	2 stories underground and 47 stories aboveground, 2 stories underground and 48 stories aboveground

02 Dongtan Metropolis (Korea)

Project period	October 2006 - September 2010
Construction scale	5 stories underground and 66 stories aboveground

03 Songdo The Sharp First World (Korea)

Project period	May 2005 - January 2009
Construction scale	2 stories underground and 64 stories aboveground

04 Seoul Forest The Sharp (Korea)

Project period	March 2011 - August 2014
Construction scale	5 stories underground and 42 stories aboveground



# Office/Commercial



01  
Yeouido Parc 1 (Korea)

**Project period**  
January 2017 – July 2020

**Construction scale**  
7 stories underground and 69 stories aboveground



02  
POSCO Tower-Songdo (Korea)

04  
Beijing POSCO Center (China)

**Project period**  
December 2012 - May 2015

**Construction scale**  
3 stories underground and 68 stories aboveground

**Project period**  
August 2014 - June 2017

**Construction scale**  
6 stories underground and 26 stories aboveground



05  
Sejong City Government Office (Korea)

**Project period**  
October 2010 - December 2012

**Construction scale**  
1 story underground and 7 stories aboveground



06  
Canal Walk (Korea)

07  
Centropolis (Korea)

**Project period**  
January 2008 - October 2009

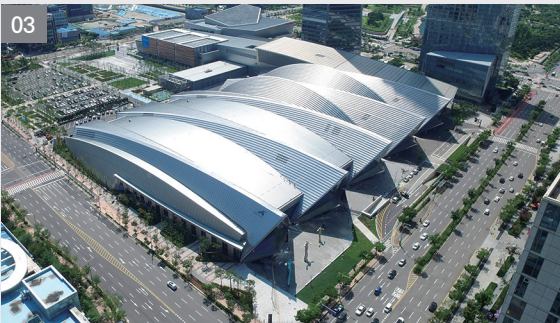
**Construction scale**  
1~ 2 stories underground and 5 stories aboveground, 4 blocks

**Project period**  
October 2015 – July 2018

**Construction scale**  
8 stories underground and 26 stories aboveground



# Culture/Exhibition/Sports



01  
Tri-Bowl (Korea)

Project period October 2008 - February 2010

Construction scale 1 story underground and 3 stories aboveground

02  
Art Center Incheon (Korea)

Project period May 2009 - August 2016

Construction scale 2 stories underground and 7 stories aboveground

03  
Songdo Convensia (Korea)

Project period 1st stage:  
March 2005 - April 2008  
2nd stage:  
December 2015 - July 2018

Construction scale 1 story underground and 4 stories aboveground

04  
Pangyo Creative Economy Valley (Korea)

Project period February 2016 - October 2017

Construction scale 2 stories underground - 8 stories aboveground, gross floor area of 78,000m<sup>2</sup>

# Accommodations/Medical/Educational/Specialty Facilities



01  
Lotte Hotel Yangon (Myanmar)

Project period February 2014 - May 2017

Construction scale 2 stories underground and 29 stories aboveground (658 guest rooms)

04  
Heavy Ion Accelerator Complex (RAON) (Korea)

Project period February 2017 - December 2020

Construction scale 2 stories underground and 4 stories aboveground, 14 experiment facility buildings for heavy ion accelerator, etc.

02  
Songdo Chadwick International School (Korea)

Project period May 2006 - June 2009

Construction scale 1 story underground and 5 stories aboveground

05  
The 100th Anniversary Church of Daegu Archdiocese (Korea)

Project period March 2013 - May 2016

Construction scale 2 stories underground and 4 stories aboveground, gross floor area of 24,000m<sup>2</sup>

03  
Seoul Child Hospital (Korea)

Project period November 2005 - January 2008

Construction scale 1 story underground and 6 stories aboveground (300 beds)

06  
Paradise City (Korea)

Project period April 2015 - March, 2017

Construction scale 2 stories underground and 10 stories aboveground, hotel 711 guest rooms, casino, convention and auxiliary facilities, gross floor area of 190,000m<sup>2</sup>



# Responsible Corporate Citizenship



Corporate Citizenship at POSCO E&C	42
Alignment of Corporate Citizenship with ESG criteria and UN SDGs	44
<b>BUSINESS</b>	
Ensuring competitive construction technology	46
Achieving highest product and service quality for customer satisfaction	50
Creating ethical, fair and mutually beneficial values	54
<b>SOCIETY</b>	
Leader in eco-friendly construction	60
Sharing value with the community	64
<b>PEOPLE</b>	
Prioritizing site safety	72
Vibrant corporate culture	76

Corporate Citizenship implementation strategy adopts the unique nature of the construction industry

POSCO E&C has devised a strategy to practice corporate citizenship specialized in the industry fulfilling its role as a “Corporate Citizen: Building a Better Future Together.” We promote Business, Society, People activities under the slogan of “Build values together,” which embodies the philosophy of smart construction that shares achievements through cooperation and the corporate citizenship management philosophy that creates the values of symbiosis.

Management philosophy	Corporate Citizenship: Building a Better FutureTogether		
Slogan	Build Value Together		
Key tasks	Business	Society	People
	Build value of mutual prosperity together with our customers	Build value of sharing together with the local communities	Build value of happiness together with everyone
	Create symbiotic values with project partners with smart construction technology	Represent Corporate Citizenship at project sites to embrace community concerns	Build a safe workplace to lead happiness
	Managing environment and future-conscious business strategies and portfolio	Foster Global Corporate Citizens to lead the way for the future	Organizational culture founded upon inclusiveness and trust

Building an organization dedicated to corporate citizenship

Corporate Citizenship Bureau

POSCO E&C has established the Corporate Citizenship Bureau, an organization to internalize the management philosophy of corporate citizenship. The bureau has devised a corporate citizenship strategy built upon the business characteristics, and develops and manages sustainability indicators to emphasize the efforts to create social values. In 2020, we are improving our execution by unlocking executive-level tasks and converting them into KPIs.

Corporate Citizenship Consultative Groups

POSCO E&C operates the Corporate Citizen Consultative Group, comprising the Corporate Citizenship Council, Working-level Council, and Sub-Committee, to promote systematic activities and performances. The Corporate Citizenship Council is the highest decision-making body of corporate citizens, and all executives of the office head level or higher assemble on a quarterly basis to discuss and vote on corporate citizenship issues under the supervision of the president. The Working-level Council and the Sub-Committee are organized by the Corporate Citizenship Bureau and hold meetings with executives, group heads, and working-level staff of major offices and business appointment offices to inspect the performance of tasks for corporate citizenship and share best practices.

• Key roles of the Corporate Citizen Consultative Group







Corporate Citizenship Council	Corporate Citizenship Working-level Council	Corporate Citizenship Sub-Committee
<ul style="list-style-type: none"><li>• Composition: President, division heads, center heads, office heads</li><li>• Cycle: Quarterly</li><li>• Tasks: Setting strategic direction of corporate citizenship</li></ul>	<ul style="list-style-type: none"><li>• Composition: Heads of related departments by subdivision (B/S/P), Head of the Corporate Citizenship Bureau</li><li>• Cycle: Quarterly</li><li>• Tasks: Sharing instructions from the management and key tasks by department,business coordination between related departments</li></ul>	<ul style="list-style-type: none"><li>• Composition: Personnel in charge from relevant departments by subdivision (B/S/P), Young Board Committee members, Corporate Citizenship Bureau</li><li>• Cycle: Monthly (meetings by subdivision), whenever necessary (Spot Issue Meetings)</li><li>• Tasks: Formulation of detailed plan by B/S/P area, support for establishment and training/promotion activities</li></ul>

Corporate Citizenship Activities

POSCO E&C provides promotional and educational activities to spread employees’ sense of voluntary participation. Under the “Build Value Together,” we engage in discussions and one-person-one-practice activities associated by departments and individuals. We also provide education in workshop for the millennial generation.

Focus areas of Corporate Citizenship

Seven focus areas have been selected to deliver the pillars of Corporate Citizenship, which are Business, Society and People. Performance strategies and tasks are cascaded from the focus areas of the three pillars to contribute to the global effort to achieve the United Nations Sustainable Development Goals.

	Areas	Promoted strategies	Tasks to perform				UN SDGs		
			Name of indicator	2017	2018	2019		Goals in 2020	
BUSINESS	Ensuring competitive construction technology	Digitalizing on-site construction management	Ratio of project applied BIM to total projects (%)	-	25	59	100	 	
		Unlocking new growth engines based on R&D	R&D investment against revenue (%)	0.48	0.39	0.42	0.42		
	Achieving highest product and service quality for customer satisfaction	Quality diagnosis based on smart technologies	Penalty points given to construction projects by the Ministry of Land, Infrastructure and Transport (point) <sup>1)</sup>	0.19	0.17	0.24	0	 	
		Expanding technological quality certification based on the collaboration with business divisions	Korean Quality Satisfaction Index (ranking)	1	1	-	1		
		Improving customer satisfaction through active communication	Customer satisfaction (points)	84.6	82.2	81.2	90.0		
	Creating ethical, fair and mutually beneficial values	Ethical management-based fair trade	Number of contracts that consider human rights (contracts)	37	39	34	40	   	
		Infrastructure support for mutual growth	Amount of financial aid (100 million KRW)	177	323	496	500		
		Sharing technological performance with business partners through a win-win partnership platform	Technological agreements (contracts)	1	2	5	10		
	SOCIETY	Leader in eco-friendly construction	Enhancing communication to reduce environmental complaints at construction sites	Violations of environmental laws (violations)	0	0	0	0	     
			Technological development for eco-friendly dwellings	Health-friendly housing projects (projects)	-	7	10	10	
Sharing value with the community		Contributing towards local community based on the collective impact	Creation of jobs for youth overseas (jobs)	-	60	100	120	    	
		Nurturing future generations geared towards the construction industry	Number of students of the construction academy (persons)	2,200	1,248	5,131	5,300		
		Voluntary and proactive participation of employees	Ratio of participation in the 1% shared contribution	-	58.0	99.6	99.0		
PEOPLE		Prioritizing site safety	Intensive control of serious accidents through the promotion of IoT-based smart safety	Deaths of employees of subcontractors caused by accidents (persons)	2	10	1	0	 
	Enhancing construction site-oriented safety activities and capacities		Converted accident rate (%) <sup>2)</sup>	0.18	0.33	0.12	0.11		
	Vibrant corporate culture	Nurturing innovative talents to enhance the capability for core businesses	Hours of education per employee (hours)	50	69	59	59	   	
		Creating a working culture with work-life balance	Usage rate of parental leave (%)	100	100	100	100		
		Innovation in the ways of working focused on collaboration	Satisfaction with inter-departmental cooperation (points)	-	-	83	90		

1) Penalty points announced by the Ministry of Land, Infrastructure and Transport based on the compiled results of inspections carried out by national agencies for construction sites  
2) The converted accident rate of 2019 is scheduled for official announcement by the Ministry of Employment and Labor in the second half of 2020

Alignment of Corporate Citizenship with ESG Criteria and UN SDGs

ESG management

POSCO E&C understands the importance of comprehensive management of financial and non-financial value drivers, namely the ESG (Environmental, Social and Governance) factors. Management principles and policies have been constituted to guide the company's fair decision-making process and transparent communication with diverse stakeholders in order to realize the shared economic and social value through the business, society and people activities based on the Corporate Citizenship philosophy.

Business, Society and People activities in alignment with ESG Criteria

Areas	Goals	Detailed activities	Page
Economic & Environmental	<div>8</div> <div>Promoting sustainable economic growth and job creation</div>	<div>• Development and application of innovative technologies such as BIM, pre-con, and pre-fab</div>	47~49
	<div>9</div> <div>Building infrastructure with a high restorative capacity and promoting sustainable industrialization</div>	<div>• Formulating technological strategies through association between projects and products, and developing eco-friendly steel building material technology</div>	47~49
	<div>Achieving highest product and service quality for customer satisfaction</div>	<div><div>3</div><div>Guaranteeing healthy lives for all people and improving their well-beings</div></div> <div><div>11</div><div>Safe and restorative urban areas and dwellings</div></div>	51 53
	Creating ethical, fair and mutually beneficial values	<div>8</div> <div>Promoting sustainable economic growth and job creation</div>	57
		<div>9</div> <div>Building infrastructure with a high restorative capacity and promoting sustainable industrialization</div>	56
		<div>12</div> <div>Sustainable consumption and production</div>	55
	Assuring sustainable energy	<div>7</div> <div>Assuring sustainable energy</div>	63
		<div>11</div> <div>Safe and restorative urban areas and dwelling</div>	63 63
		<div>12</div> <div>Sustainable consumption and production</div>	62
	Leader in econ-friendly construction	<div>13</div> <div>Rapid response against climate change and its impacts</div>	63 63
		<div>15</div> <div>Protecting sustainable terrestrial ecosystem and biodiversity</div>	62
		<div>17</div> <div>Promoting global partnership for sustainable development</div>	61
		<div>• Signing voluntary agreements with domestic construction companies and the Ministry of Environment to reduce particulate matter at construction sites</div>	

Achieving the UN Sustainable Development Goals

The United Nations Sustainable Development Goals need to be achieved through joint efforts of the international community by addressing critical economic, environmental and social issues, and POSCO E&C engages in its Corporate Citizenship driven activities to address such challenges across its global footprint. Socio-economic values delivered through its key business areas including steel, power and environmental infrastructure to ensure to fulfill our role as a global citizen in achieving the sustainable goals.

Areas	Goals	Detailed activities	Page
Social	<div>3</div> <div>Guaranteeing healthy lives for all people and improving their well-beings</div>	<div>• Providing medical checkups for the neglected classes of people in the vicinity of domestic and overseas construction sites and hygiene education for elementary school students</div>	65
	<div>4</div> <div>Assuring tolerant, fair, and quality education and promoting life-long education</div>	<div>• Providing multi-media audiovisual room for the education of disabled children in Saudi Arabia</div> <div>• Provision of one &amp; one learning mentoring to Incheon Regional Children's Center</div> <div>• Providing a construction education academy with a free semester system for middle school students</div>	66 68 68
	<div>8</div> <div>Promoting sustainable economic growth and job creation</div>	<div>• Creating jobs for youth through skilled construction worker training programs in the vicinity of overseas construction sites</div> <div>• Support for the youth who wish to start their own business through a startup contest for the next generation of construction</div> <div>• Providing mentoring to support employment of the youth</div>	66 67 70
	<div>11</div> <div>Safe and restorative urban areas and dwellings</div>	<div>• Promoting fire prevention and residential environment improvement activities for the neglected classes of people</div>	65
	Prioritizing site safety	<div>3</div> <div>Guaranteeing healthy lives for all people and improving their well-beings</div>	74~75
		<div>8</div> <div>Promoting sustainable economic growth and job creation</div>	73~75
	Vibrant corporate culture	<div>4</div> <div>Assuring tolerant, fair, and quality education and promoting life-long education</div>	77
		<div>5</div> <div>Achieving gender equality and enhancing the capacity of female adults and children</div>	77
		<div>8</div> <div>Promoting sustainable economic growth and job creation</div>	78 79
		<div>10</div> <div>Reducing inequality in Korea and among countries</div>	79
	Corporate Governance	<div>16</div> <div>Promoting a tolerant society for sustainable development</div>	85
		<div>17</div> <div>Promoting global partnership for sustainable development</div>	42
	Risk management	<div>16</div> <div>Promoting a tolerant society for sustainable development</div>	86 86
		<div>16</div> <div>Promoting a tolerant society for sustainable development</div>	55, 87~89
Governance	Ethical management	<div>16</div> <div>Promoting a tolerant society for sustainable development</div>	
		<div>• Ethical-management-based fair trade</div>	





## BUSINESS

# Ensuring competitive construction technology

### Risks

- Slowdown of growth in domestic and overseas construction markets
- Intensified competition with international construction companies with price competitiveness

### Opportunities

- Securing order winning competitiveness through improved IT technologies
- Earning recognition for having innovative construction capacities through smart construction

With the Fourth Industrial Revolution, the construction industry is also experiencing a rapid application of IT- and AI-based cutting-edge technologies. In the construction industry of Korea where over 12,000 companies compete head on, securing outstanding technological prowess and the power to undertake projects are the key to maintaining market dominance. POSCO E&C has promoted smart construction based on smart technology, and as a result, achieved sixth place in the domestic construction capacity evaluation by gradually applying enhanced design and construction technologies to its projects. We will continue to reinforce our competitive edge in the construction technology with an emphasis placed on our inherent and unique technological development, paving the way for improved quality and work efficiency in both designing and construction stages.



**8** DECENT WORK AND ECONOMIC GROWTH  
8.2 Improvement in productivity through business diversification, technological development, and innovation



**9** ROBUST INNOVATION AND INFRASTRUCTURE  
9.5 Expansion of R&D personnel and investment, and encouragement of innovation to improve the technological capacity of the industry

First in the Construction Industry

## Development of Smart Construction Platform



2019 BIM Awards

## Excellence Award



R&D investment

**32.3 billion KRW**



Professional researchers

**83 persons**



## Leading Smart Construction technology

### Smart Con. performance system

Smart construction refers to a process of integrated management of all construction stages with digital data-based BIM and incorporating ICT technologies such as virtual construction, modularization of construction materials equipment, and intelligent construction to optimize construction productivity. POSCO E&C is promoting smart construction to address reduced productivity amid challenges in the construction environment caused by reduced working hours due to 52-hour work week rule, aging of construction manpower, and increased foreign workforce. In 2019, the Company enhanced its technological capability in the BIM, pre-con, pre-fab, and smart tool. A particular focus is placed on the field where schedule, quality, and safety issues frequently arise during the overall construction stage to perform differentiated smart construction such as detailed work management and digital data-based integrated project management.

### Increased project application of smart construction technology

#### Improved BIM capability

Building Information Modeling (BIM) is a 3D digital modeling technology that integrates every construction information in the entire process from design-construction-maintenance. This leads to improved construction productivity through quantity information and construction cost estimation, constructability determination, and construction schedule projection, all serving as contributing factors behind the rising popularity of the BIM technology in the construction industry. POSCO E&C offers BIM training for all employees and subcontractors to enhance its BIM competency, which provides momentum to the extended BIM application to its every project. The BIM technology is applied to over 60 projects, including the Sinansan Line and Pohang by-product gas combined cycle power plan. In particular, the Yeouido Parc One development project focused on the enhanced usability of BIM in the design verification, construction and safety management fields, leading to the accomplishment of winning an excellence award in the 2019 BIM Awards. The BIM will be applied to all new projects from 2020 to improve design and construction qualities.

#### Competitive Pre-construction capability

Pre-con is an advanced management technique applied in the pre-construction stage by all stakeholders involved in the project to optimize expenses and construction quality via BIM-based virtual construction. The designing and construction partners collaborate from the initial stage find construction risks in a

project, thereby reducing costs and improving weekly progress rate. POSCO E&C has selected members of each division to train the pre-con technique to achieve an optimized use of this technique. The Company has accomplished early completion and gained the trust of project owner through pilot application to POSCO Chemical Sejong plant and Gwangju Opo apartment project, which will be a foundation for extended application of the technique to all of its business areas including plant and infrastructure.

#### • Achievements made by pre-con application

POSCO Chemical Sejong anode material plant No. 2	Gwangju Opo apartment
Project period reduced by <b>3 months</b>	Construction cost reduced by <b>2%</b>

### Pre-fab (pre-fabrication) collaboration

Pre-fab is a technique of manufacturing key equipment and structures at factories in advance, which are then assembled at the construction site, thereby minimizing site work. Collaborative works are carried out with members of POSCO C&C and POSCO A&C for the supply of steel materials and design work required for equipment manufacture to develop outstanding items such as modular rooftop and electrical room. This technique was applied to Busan Myeongji The Sharp Apartment and Pohang Coke project, thereby reducing the construction period by more than 70%, and its effect of minimizing site work is also expected to reduce the risk of safety-related accidents.

#### • Impact of pre-fab on the reduction of construction period

Busan Myeongji The Sharp PJT	RC method required 7 weeks	Modular rooftop required 2 weeks	>	Reduced by 71%
Pohang Coke PJT	RC method required 20 days	Modular electricity room required 3 days	>	Reduced by 85%

### Expanded use of Smart Tools

In the measurement work and the review of construction site designs, cutting-edge equipment allows rapid and accurate verification of vast and inaccessible areas. In 2019, various smart tools including drones, 3D scanners, and MCS (automated construction equipment) were utilized for over 40 projects, improving output and reducing errors.

#### • Effects of using the smart tool

Drone	3D scanner	MCS
Improved efficiency by at least 50% compared to the previous manual measurement	Prevents reconstruction based on high-precision data information	Improved work efficiency by 20%
Improved quantity accuracy by at least 3%		Cost reduction via prevention of reconstruction



# Leading Smart Construction technology

## Efficient smart construction based project management

### Process innovation via AWP technique

Carrying out work according to the plan in the construction site involving various work processes such as designing and construction by work classification is essential to preventing delays in the construction. Therefore, POSCO E&C has adopted the AWP (Advanced Work Package)-based construction work process to improve productivity of the construction process. The AWP technique is a performance technique used to improve project productivity developed by the CII (Construction Industry Institute) in the United States, which categorizes construction work into manageable and performable work units to drive improved performance in the productivity as well as cost, safety, quality, and schedule.

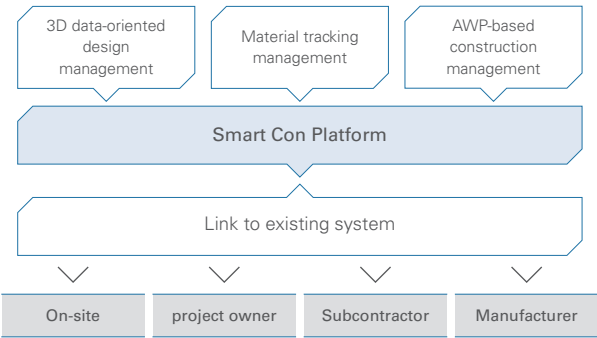
• AWP application effect

Productivity	Cost
Construction site productivity improved by 25%	Total construction cost reduced by 5-10%
Safety	Quality
Safety issues identified and addressed in planning and development stages	Site operation quality improved due to reduced re-work

### New establishing of the Smart Con. Platform

We have built the integrated system of smart con platform for the first time in the construction industry to bring forth the collaboration in the AWP-based construction management and web-based projects. All management tasks such as integrated project management, 3D CAD, virtual construction simulation, and material and process management are conducted through the web-based platform, and the data accumulated on the platform are used for similar projects to boost the smart construction technology of the Company.

• Smart Con platform



## SPECIAL ISSUE

### Smart construction allows for early construction completion of Sejong Anode Material Plant!

The construction of the natural graphite anode material plant 2 in Sejong displayed the most outstanding outcome among POSCO E&C's projects applied with smart construction. In particular, four major performance strategies were formulated and conducted a pilot program to 'improve design quality for reduced construction period and early installation of production facilities and to minimize modifications during the construction stage' as requested by the project owner, POSCO Chemical. To ensure various collaborations and frequent meetings are smoothly carried out between project participants during a short design period of only four months oriented towards "early groundbreaking and early completion," the Big Room\* was organized to serve as a space where the smart con technique is utilized. The BIM was performed in the pre-construction stage with project participants to control design errors and interfering reviews, thereby preventing risks at the actual construction stage. The use of smart construction technique enabled the project period of the anode material plant No. 2 to be cut by 3 months, completing the construction early within 19 months, and marked an achievement of saving the initial target of construction cost by 7%.

\*A space furnished with equipment (server, screen, computer, etc.) where the smart construction technique is available for use, unlike the conventional site office at the design and construction stages.

• Four major performance strategies in the construction of the anode material plant No. 2

Lean Construction	BIM
An efficient construction technique that all eliminates waste in each process from designing to construction to maximize quality	Integrated construction information management process that incorporates all construction-related information such as designs, processes, and materials
Pre-fab	IPD contract
A method of manufacturing key structures at plants in advance and assembling them in the field	An integrated ordering system for distribution of profits and risks and to allow horizontal collaboration of a project's parties (orderer, architect and builder) as a single team to perform the project

# Foster new growth engines based on R&D competitiveness

## Defining technological strategies that link projects and products

POSCO E&C formulated the business product technology roadmap with project and product experts involved to enhance its technological competitiveness throughout the entire value chain from winning orders to construction completion. In particular, 12 key fields requiring technological development among the 5 major fields of the Company have been selected to derive clear and quantitative technological goals for each product type and conduct technological development, and the success in the technological development is expected to contribute to increasing the Company's order acquisition.

## Technological development of eco-friendly steel building materials

### Reusable structural technology

POSCO E&C retains the reusable structural technology that leverages the recyclability of iron, allowing structural materials to be easily assembled and disassembled for recycling after long-term use without disposing them. Due to the high-strength property of iron, it sustains less damage even after an earthquake, giving rise to its use through composite pillar, beam and slab technologies as structural materials in plant, infrastructure and building fields.

### Modular and construction material technology

The modular technology combines the pre-fab technique of prior manufacturing at the factory and assembling in the field with the steel building material technology to reduce construction period as well as CO<sub>2</sub> emissions. POSCO E&C manufactured modular rooftops and recycling storages for efficient reduction of cost and construction period. Construction material technology leverages the eco-friendly characteristics of steel building materials, and it is applied to cable trays, internal components of PosMAC elevators, and well collecting, thus improving quality and reducing cost by 20-50%.

• R&D investment / R&D investment ratio against revenue (100 million KRW / %)

2017	338	0.48
2018	275	0.39
2019	323	0.42

• Professional researchers (person)

2017	69
2018	66
2019	83

## AiQ TECH, the future of smart home technology

### More convenient, AI voice recognition apartment

POSCO E&C applies the smart technology, IoT and AI technology, within the apartment to make the life of residents easier. In particular, the AI platform, 'Kakao i' and The Sharp home network system linked to each other ensure convenient conversations within each household and device control and status check through KakaoTalk texts, providing support for residents to lead a further relaxed and smart life.

### Safer, 3-line security system

The safety and security of residents are our top priority, thus a three-line security system is applied to cover from the apartment complex entrance and park to household entries. A particular focus has been placed on the crime prevention inside buildings, as reflected in the introduction of the 'female relief service' that allows residents to check inside elevators, the 'child relief service' that allows parents to view their children within major facilities, and the 'elevator safety system' that monitors inside elevators. In addition, a connection to the earthquake detection system has been established to convey real-time earthquake alerts and evacuation guidelines through the home network system in the event of a natural disaster to prevent major accidents and minimizing life loss.

### Healthier, automatic ventilation and HEMS system

An automatic ventilation system has been applied for automatic control of ventilation system through Kakao i or smartphone, protecting the health of residents against various harmful environments. In addition, the Home Energy Management System(HEMS) has been applied to home network systems to monitor the energy consumption by hour/month/year and allow each household to see comparisons with others, thereby encouraging energy saving.

## AiQ TECH

A smart technology that learns on its own and engages in smart thinking for customers through the combination of the cutting-edge AI technology, intelligence quotient of POSCO E&C, and the emotional intelligence of The Sharp.

	More convenient	Safer	Healthier
IQ	• Smart home IoT system	• Intelligent image analysis system	• Particulate matter care system
AI	• Parking location and guidance system	• Integrated disaster system	• Antibacterial red-clay ventilation and piping system
EQ	• Smart phone one-pad system	• Smart door lock	• Non-adhesive packing ventilation duct
	• Automatic route guidance and welcome lighting system	• Automatic earthquake detection and alert system, etc.	• Air supply-linked separable fan hood
	• AI voice recognition system		• Direct-exhaust headwind prevention cap, etc.





BUSINESS

# Achieving highest product and service quality for customer satisfaction

Risks

- Possibility of ex post risks such as faulty construction and defects
- Increase in customer demands for product quality and services

Opportunities

- Improvement in order-winning competitiveness through acquisition of technological certificates
- Enhancement of customer satisfaction through systematic customer and quality management

Customer satisfaction comes from the finest quality. To this end, the risk must be prevented through outstanding designs and construction technologies and continuous quality inspection throughout the entire process from the project order acquisition to the repair and maintenance. POSCO E&C Conducts strict quality diagnosis and control to realize the top-notch quality to win the hearts of its customers. By leveraging the IT technology in step with the era of the fourth industrial revolution, quality inspections will be carried out and actions will be enforced to address consequent and foreseeable defects to offer the finest quality services for its customers.

9

9.4 Improvement of infrastructure through high resource efficiency, clean and environmentally safe technologies, and industrialization

11

11.3 Tolerant and sustainable urbanization in all countries and improvement in the planning and management capacity of participant-oriented and sustainable dwellings

Korean standard quality excellence index KS-QEI

Ranked 1st for 10 consecutive years in apartment category (2009~2018)



Customer satisfaction in the preliminary survey of KS-QEI

85.60 points

(16.92 points rise year on year)



2019 National Quality Management Convention

Selected for excellence in quality competitiveness



Brand customer loyalty index (BCLI)

Ranked 1st for 3 consecutive years in apartment category (2017~2019)



## Realization of outstanding construction quality

### On-site quality assurance diagnosis

#### Themed diagnosis for vulnerable work classification

Even a minor defect may lead to a severe accident in the construction industry, it is critical to check quality at all times. POSCO E&C conducts themed diagnosis for 9 work classifications such as coil sheathing work, tunnel, bridge, rebar, and concrete. The site where each work classification is carried out is visited and the adequacy of construction design drawings and the compliance with construction procedures and standards are verified to inspect any inconsistencies. Action plans are then submitted to ensure consistency in the matters derived from this process and the tracking and monitoring are conducted until the completed correction stage, thereby preventing fraudulent constructions and safety-related accidents of workers. In 2020, an early diagnosis in the construction commencement stage of vulnerable work classifications and a focused diagnosis for work classifications with a high number of defects and complaints will be carried out to enhance quality management of risks.

#### PC structure quality control

Precast concrete (PC) structures are concrete structures that are manufactured at plants in advance and installed at the site, giving rise to the benefits of reduced construction period and easier quality control. However, the delivery is made through the manufacturing plants, only visual inspection is available for the PC structures placed at the site, and it is difficult to clearly identify internal cracks and defects of raw materials. Therefore, POSCO E&C conducts diagnoses for PC structure manufacturing plants throughout the entire process. As a result of the 2019 diagnoses, the ‘curing temperature control, regular inspections for own batch plants, and recording and management of measured results’ were determined as unsatisfactory and the plant inspection standard and the manufacturing stage measurement photograph management process have been enhanced through detailed consultations with related departments, thus improving the quality control of supply chain.

• PC structure quality control diagnosis results and improvement measures

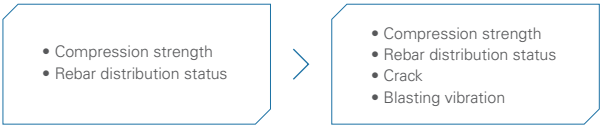
Issues	Causes	Improvement measures
Curing temperature control	Insufficient calibration of thermometers	Calibration by certified calibration agencies
Own regular inspections of batch plants	Excess of error standards in the aggregate and admixture input	Additional inspection for ready-mix concrete by the Ministry of Land, Infrastructure and Transport consistent with the inspection standards
Measurement record management	No-retention of measurement photographic records by stage	Submission and storage of invoices, measurement reports, photographic records for field entry

### Increase efficiency by smart quality inspection system

#### Utilization of cutting-edge testing equipment

The quality and safety inspections of structure appearances give rise to limits in discovering structural defects such as cracks. Therefore, POSCO E&C relies on advanced equipment to measure risk factors that affect the safety of concrete structures. The Company has extended the measuring extent from the previous diagnosis of measuring the compression strength and the rebar distribution status to cover the cracks and blasting vibrations, and thus it is expected to improve the safety of concrete structures applied to underground parking lots and logistics centers and to prevent the risks for customer safety.

• Advanced inspection extent



• Advanced equipment inspection for structures

Advanced measuring equipment	Details of support
Rebar detector	• Estimation of rebar locations in the structure and integrity by measuring sheath thickness
Schmidt hammer	• Estimation of concrete strength using the Schmidt hammer test of structures
Ultrasonic gauge	• Estimation of crack shapes by measuring the crack depth and gaps of structures
Crack deformation gauge	• Measurement of various stress structures and determines crack progress status
Blasting vibration gauge	• Determination of vibration effects on the existing surrounding structures at the time of pile driving and blasting

#### Establishment of smart quality control system

The existing site quality works were mostly carried out manually, requiring much time to verify data and handle works. POSCO E&C is building the “integrated site quality control system” by stages in the PDCA (Plan-Do-Check-Act) for efficient quality checks. In 2019, in particular, the mobile history management system for the concrete inspection work that display frequent inconsistencies at the site throughout 7 stages was transformed into the two-stage procedure. This has cut down the work per staff by almost half and allowed workers to focus on their inherent quality work. In 2020, the Company will continue to develop the quality inspection and control and internal inspections by stages as the major legal quality work and raise the efficiency of quality diagnosis.



## Acknowledged technical excellence drives further quality competitiveness

### Certification of technological advancement

POSCO E&C is engaged in overseas plant projects built upon its outstanding competitive edge in terms of quality. The Company continues to renew its ASME and KEPIC structure designing certifications required for winning orders for overseas projects, and further expanded its competitive edge by newly acquiring the ASME PP standards applicable to all plant projects in 2019. These quality certifications laid the foundation for the Company to win plant business orders in Malaysia, the Philippines, Indonesia, and Saudi Arabia.

• Global quality certification status

ASME

Technological standard	Applied projects	Applied fields	Note
I	Thermal power generation	Boiler designing and construction	Renewed in 2019
III	Nuclear power generation	Construction of US-type nuclear power generation	Acquired in 2018
PP	All plants including chemical	Manufacturing/repairing of pressure piping	Acquired in 2019

NBBI

Technological standard	Applied projects	Applied fields	Note
R	Power generation	Repairing/remodeling of presser containers	Renewed in 2019

KEPIC

Technological standard	Applied projects	Applied fields	Note
Designing	Nuclear power generation	Structure designing of Korea-type nuclear power generation	Renewed in 2019
Construction	Nuclear power generation	Construction of machinery, electricity, and structures for Korea-type nuclear power generation	Renewed in 2018

### Paving the way for the quality competitiveness in the construction industry

#### 'First general contractor in Korea' to be awarded for quality excellence

POSCO E&C continues to enhance its quality diagnosis to offer products with high quality, even managing the quality of suppliers through the smart quality control system. Accordingly, the Company was selected as an outstanding company in quality competitiveness for the first time for general contractor in the 2019 National Quality Management Convention, in recognition of its quality activities. In particular, quality control technique incorporating smart technologies and systematic quality activities involving subcontractors-site-all employees received a positive feedback.

#### Awarded with Best in Class with highest score for quality management task distribution system

POSCO E&C focuses on the smart construction that incorporates smart technologies such as IoT and AI. The Company analyzes over 2 million quality data gathered through big data for the first time in the industry from the perspective of 4M\* and detects the sites with 9 vulnerable work classifications in real-time to offer solutions such as automatic provision of quality solutions and performance of themed diagnoses. This allows the Company to eliminate quality risks at the site and the R&D researchers are commissioned to address quality issues, thereby making improvements through technical reviews. Due to these technologies, the Company won the Presidential medal in the outstanding quality task distribution category in the 2019 National Quality Management Convention, which was the highest score among construction companies.

\* 4M perspective: Man, machine, material, and method



[ Won as an outstanding company in quality competitiveness in 2019 ]

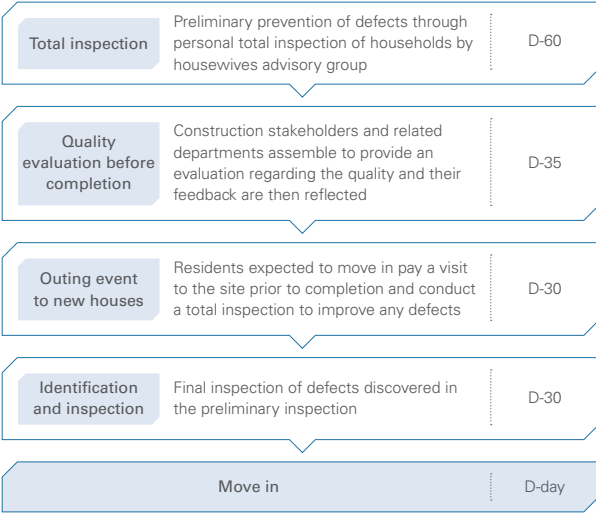
## Quality Assurance leads higher customer satisfaction

### Customer satisfaction management for customer residents

#### Preliminary inspection of residents

POSCO E&C values the philosophy of “sensitivity,” seeking to remain sensitive to customers’ hearts. POSCO E&C conducts preliminary actions for foreseeable defects through anticipative performance of the ‘inspection of related department’ by stages and the ‘preliminary inspection by housewives advisory group 60 days before move-in’ from customers’ perspectives to improve quality and customer satisfaction. With the mind of ‘sensitivity’, the Company will engage in active communications with customers and minimize their inconvenience to satisfy customers.

• Preliminary inspection process of residents



#### Service with All Heart

The Service with All Heart is a service brand that portrays the true heart of The Sharp that seeks to serve customers with all of its heart. To ensure that the customers benefit from a comfortable and convenient residential life even after the preliminary inspection by residents is over, the services necessary for everyday life such as move-in support, sharing, cleaning, and life service are provided, and in 2019, the service was further extended to cover the curating and clean utility service. From the moment the customer selects The Sharp until after their move-in, the services continue to expand to cover wider areas oriented towards winning customers’ hearts.

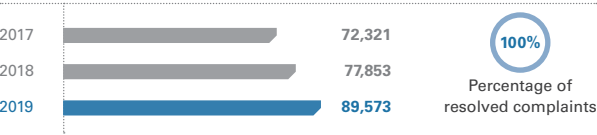
• Type of Services with All Heart



### Improvement of satisfaction through the management of customer complaints

POSCO E&C runs online and offline channels such as the cyber report center, telephone consultation, Happycall, CS centers, and move-in support centers to collect inconveniences and various complaints related to defects. The complaints are transmitted to the 6 centers in real time for rapid processing and, the results are continuously reviewed. In addition, the opinions through satisfaction surveys are reflected in the development stages of future housing designs in priority. As a result of the 2017-18 survey, the smart home system “AiQ Tech” was applied to new facilities built after 2019 due to the need of technologies for the convenience. The KS-QEI preliminary survey for apartments was highly praised with scores of over 80 points, experiencing increases in all categories of total, customers, and experts compared to the previous year.

• Number of complaints after move-in(Cases)



### The Sharp Brand Renewal



POSCO E&C attempted a significant transition in the brand within 17 years in line with the ever-evolving housing trends. Beginning with the BI renewal, it reflects the commitment to open the era of “The Sharp 3.0” that remains faithful to the oriented value of residence, and with the concept of “Advance in Core,” the Company selected the 4 values of reliable safety, enhanced convenience, comfortable rest, and refined design. POSCO E&C will not be satisfied with current success and will always change for The Sharp with finest quality to continue its history.

### Improvement in project owner satisfaction

It is significant to continuously improve services for project owners even after the completion of the best quality product. POSCO E&C received an achievement award and medal from Paradise Sega Sammy Holdings Inc., a project owner for Paradise City in Yeongjongdo, which took about 30 months to build, in recognition of its contribution towards its active performance of CS activities. In addition, the Company continued to operate a defect handling team after its completion of the Seoul Baekje Museum construction and provided repair services for crack defects, etc. and received a citation from the Seoul Metropolitan Government.



BUSINESS

# Creating ethical, fair and mutually beneficial values

Risks	Opportunities
<ul style="list-style-type: none"><li>• Stricter regulations regarding corruption and unfair conduct</li><li>• Increased responsibility of project owners for subcontract risks</li></ul>	<ul style="list-style-type: none"><li>• Formation of the feeling of trust with the ethical management-based cooperation system</li><li>• Enhancement of quality competitiveness through support for the capabilities of subcontractors</li></ul>

The business areas of the corporate philosophy of the corporate citizenship aims to create a rigid ecosystem with SME business partners within the construction industry. As a result, POSCO E&C practices the value of fairness, transparency, and ethics in all of its businesses, and collaborates with its subcontractors and suppliers in a caring and respectful manner, thereby achieving mutual growth. The Company will continue to practice ethical management, pursue the value of co-existence and co-prosperity through technical cooperation and financial support offered to its business partners to establish the management philosophy of “Corporate Citizen, Building a Better Future Together.”

 <b>8</b> DECENT WORK AND ECONOMIC GROWTH	8.2 Improvement in productivity through diversification, technological development, and innovation 8.3 Promotion of development-oriented policies that drive the formation and growth of small businesses and SMEs
 <b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE	9.2 Enhancement of inclusive and sustainable industrialization 9.5 Expansion of R&D personnel and investment & encouragement of innovation to improve the technological capacity in the industry

Technical cooperation  
**5 Technical cooperation agreements**  
Performance rewarded at KRW 7.8 bn.



Jointly owned patents  
**6 applications**  
**8 registrations**



Financial support  
**49.6 billion KRW**  
(Mutual cooperation fund and win-win loan)



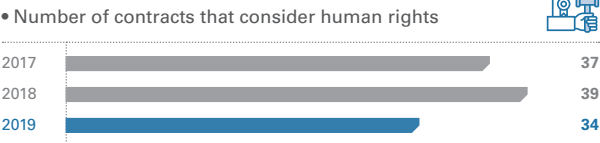
**Awarded Grand Prize**  
for Construction  
Cooperation Enhancement  
Competition in 2019



## Fair and transparent transactions with business partners and contractors

### Fair trade practice promoted through compliance management

POSCO E&C has been creating a transparent and fair-trade culture based on its Ethics Charter that puts integrity, fairness, and honesty as its top priority. In particular, as the competitiveness of the Company is achieved through fair trade based on ethical management, the Company will always keep this in mind and create a corporate culture that practices business fairly and correctly. POSCO E&C reflects provisions on human rights and labor required by global initiatives such as the Universal Declaration of Human Rights, Guiding Principles on Business and Human Right, the International Labour Organization, and ISO 26000 in its contracts to manages the subcontractor CSR risks. All transactions are subject to contracts that reflect the special terms and conditions on the practice of ethics.



### 4 Key action plans in compliance with the Fair Trade Commission

The basic requirement of win-win cooperation is fair trade, and thus the Company complies with the 4 major rules of the Fair Trade Commission to secure fairness in the contract signing process. In particular, all transactions of over a certain amount are subject to the deliberation of fairness in the contract signing and price determination processes through its internal deliberation committee to monitor the compliance with the Fair Transactions in Subcontracting Act.

### Transactions with subcontractors in consideration of TCO

In order to prevent additional costs incurred during the project, the expected cost is regarded as an important matter to consider along with the capability of the subcontractors to carry out the project in the selection stage. In the case of transactions with subcontractors that are worth more than a certain amount, Total Cost of Ownership (TCO)\* purchase is conducted to pre-diagnose the quality and construction capabilities of the subcontractors and to prevent production and construction delays and design changes as well as the securement of the quality of construction.

\* Total cost of ownership, including the purchase price of purchased products and services, and the costs incurred after delivery to the customer thereafter.

### Enhanced work efficiency through the systemization of purchasing operations

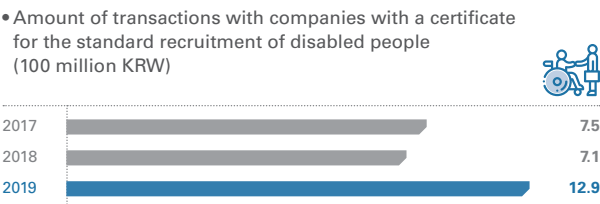
In purchasing operations, it is important to share information with business partners in relation to bidding, contracting, and payment etc. In 2018, POSCO E&C developed a mobile purchasing system in addition to the existing PC-based purchasing system for the first time among Korean construction companies. As a result, business partners have been able to easily access information on mobile devices, thereby improving work efficiency of the company and its business partners.

• Purchase system

e-Procurement purchase system	Jointly used mobile purchase system
Introduced in 2000	Introduced in 2018
<ul style="list-style-type: none"><li>• Subcontractor registration and assessment</li><li>• Bidding and electronic contracts</li><li>• Ex post management after contracts (payment)</li><li>• Center for handling difficulties</li></ul>	<ul style="list-style-type: none"><li>• Real-time sharing of purchasing operations such as bidding announcement and results, and payment status</li></ul>

### Creating social value with socially responsible purchasing

The Company creates social values partnering with companies that have a certificate for the standard recruitment of disabled people to increase purchases from these companies. The Company has signed with 2 companies and the total amount of purchase is 1.29 billion KRW, which continues to increase.



### Abolition of the lowest bid awarding system

The lowest bid awarding system creates excessive competition among small- and medium-sized enterprises for low-cost orders, and if construction is carried out beyond one's capability due to falling profitability, the quality of construction will be reduced, posing safety risks. Therefore POSCO E&C introduced the “low-price bidding restriction system” to ensure proper profit for SMES. With the decision that considers opportunity costs such as quality and safety is expected in job security, technological development, and investment in safety facilities based on the financial stability. Also, the Company expects to have win-win relationship with its subcontractors by improving the overall competitiveness of the industry without excessive competition.



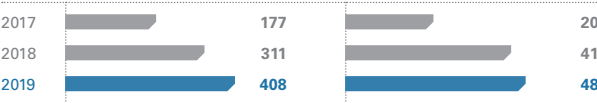
## Value realization through the establishing of a win-win culture

### Support innovative growth of our SME partners leveraging our business infrastructure

#### Mutual cooperation fund and win-win loan

POSCO E&C runs a wide variety of financial support programs in hand with financial institutions to help business partners carry out their business in a stable financial environment. Since 2011, the Company has raised win-win cooperation funds of 52 billion KRW with Woori Bank to provide low interest loans to its business partners. In addition, the Company jointly launched the win-win loan product in 2018 together with the Korea Commission for Corporate Partnership, Seoul Guarantee Insurance Company, and Shinhan Bank to help with the growth of its business partners with insufficient collateral, providing loans worth a total of 8.8 billion KRW in 2019. These financial aids are expected to benefit the business partners to secure liquidity, thus improving their capability to carry out projects.

• [Mutual cooperation fund] Supported amount (100 million KRW) / Number of subcontractor that participated



• [Win-win loan] Supported amount (100 million KRW) / Number of subcontractor that participated



#### Operation of the Innovation Support Group

The Company shares the infrastructure and know-how in its possession with its business partners and provides support to create a culture of mutual growth. POSCO E&C newly launched the “2019 Innovative Support Growth” composed of 16 support groups in relation to building, infrastructure, plant business, and safety and purchase among many more, and 320 business partners to provide support for innovative activities in the fields of technology, safety, and job training that are required by SME business partners. In particular, the Company put forth its utmost efforts into preventing serious accidents by strengthening the safety capabilities of its business partners by means such as hands-on safety education and support for obtaining safety certificates. In 2020, the Company will expand its operations to cover over 20 support groups to enhance the expertise and smart construction capabilities of its business partners.

• Activities of the innovation support group in 2019

Technological exchange	Safety activities	Education sharing
Development of jointly researched technologies and benefit sharing	Diagnosis and improvement of safety capability, hands-on experiential safety activities	1-day, hands-on construction training
6 support groups 7 subcontractors	2 support groups 57 subcontractors	8 support groups 256 subcontractors

### Fostering of a site-oriented communication culture

#### Consultation sessions with the on-site sub-contractors

In the on-site culture built on respect and consideration, it is important to communicate directly with the on-site staff in charge of practical affairs and seek to make practical improvements. In order to efficiently disseminate safety and win-win policies to the sites from 2019, management held meetings with 245 project managers of subcontractors visiting 21 sites and listened to the actual VOC, thereby conducting 132 improvement activities, including expanded support system for funeral supplies.

#### Understanding on-site challenges

POSCO E&C has been operating a grievance handling center on its purchasing portal since 2008 to gather feedback from business partners, including inquiries and suggestions related to purchasing operations, and to make subsequent improvements. Also in 2019, the Company built the ‘Site workers’ feedback tool’, a mobile app that allows users to easily register inconveniences and unfair treatment experienced by site workers through their mobile phones, thus addressing the difficulties that are actually experienced by workers on site.

### Creating a robust ecosystem for the construction industry with business partners

#### Providing incentives to Partners of the Year

POSCO E&C provides various incentives to business partners through the annual Partner of the Year program so that we can create a robust ecosystem for the construction industry with them. In 2019, we selected 30 Partners of the Year in five areas: construction, facilities, materials, design, and safety. Partners of the Year are provided with benefits such as agreement deposit deduction, bidding priority, and multi-industry registration.

## Performance sharing through technological cooperation

### Enhancement of business capability through performance sharing

POSCO E&C seeks to improve the technological competitiveness of subcontractors as well as the Company itself by setting the “performance sharing” with subcontractors as an oriented value. As a result, the Company is jointly developing technologies with subcontractors through the performance sharing system\* and by reviewing the effectiveness of new technologies through testbeds\*. By sharing actual profits and performances, the Company contributes to increasing sales as well as enhancing technical capabilities.

\* Performance sharing: A system for sharing performances by setting joint goals with SMEs and developing the technologies

\* Testbed: Environment, system or equipment that enables testing of the performance and effectiveness of new technologies, products, and services

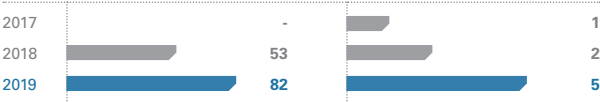
### Use of new technology proposals through win-win platform to promote creativity

The win-win cooperation platform is a proposal platform designed to expand technological cooperation with subcontractors. Long-term contracts are signed when performances, such as cost reduction and productivity improvement, are demonstrated as subcontractors propose and apply jointly developed technologies. The subcontractors can propose conveniently and it facilitates fair cooperation. Out of the 82 cases submitted in 2019, the Company signed five agreements and completed the payment of a total of 7.8 billion KRW for performance sharing to support the growth of its subcontractors.

### Development cooperation for idea excellence

POSCO E&C holds idea contests for technological cooperation for site-applicable smart construction for the future construction technologies and mutual growth with SMEs. SMEs that have not dealt with the Company can also participate without restrictions. In 2019, a total of 39 companies participated in four areas, including IoT construction, construction equipment automation, modularization, and BIM utilization. The six technologies selected as the ideas have either been applied or are under review for conclusion. By providing various incentives such as granting long-term supply rights and applying for jointly-owned patents when the performance of such technologies are verified, the Company fosters technologies of SMEs with innovative ideas.

• Number of technological cooperation proposals / Number of signed performance-sharing (cases)



• Completed compensation for performance (100 million KRW)



#### SPECIAL ISSUE

### Best practice for development cooperation brings win-win synergy for POSCO E&C and its business partners

POSCO E&C grows together with its subcontractors through technological cooperation and performance sharing. In 2019, the Company implemented a total of five performance sharing systems, for which three have been compensated and two of which are in the process of contract conclusion and task performance. In addition, through the pilot application of outstanding technologies to currently on-going projects, it contributes to the quality improvement of projects as well as increased sales of subcontractors.

Model cases	Subcontractors	As-Is	To-Be	Effect
Development of auxiliary facilities for high-capacity wireless communication	Cast Win	One location with 4 floors	One location with 6-8 floors	Cost reduction by approx. 15%
Development of recycling storage using PosMAC	Yoochang Co., Ltd.	On-site construction of metal and masonry work	On-site installation after factory production	Reduced on-site installation period
Development of steel frame modulars for rooftop structures of residence	Yoochang Co., Ltd., and Yoochang E&C Co., Ltd.	Rebar concrete construction	Modulars using steel frames and lightweight walls	Reduced on-site installation period
Improved installation technique for Coal Silo Hopper Dummy	Cheongam E&C	Scaffolding frame and supporting post	Corrugated steel plate	Reduced construction period
Development of removable secondary parts for top-down method and PHC stake	Sampyo E&C and PHC Top Down	Quality defect occurred due to on-site deposition	Construction of PHC files manufactured in advance combined with removable secondary parts	Improved construction quality



# BUSINESS

## with POSCO E&C



Build trusting relationships



Enhance capabilities in cooperation



Create creative products through collaboration



[ Haeundae LCT The Sharp ]

POSCO E&C seeks to engage in activities for the business pillar of the corporate citizenship through development cooperation for advanced technologies and strengthen work capabilities and safety management to create symbiotic values with our business partners.

### Creating symbiotic values through joint industry-academia-R&D center research

POSCO E&C has been engaging in technology-sharing for SMEs free of charge with 97 patents in its possession as part of win-win cooperation since 2018, and is currently proceeding 34 joint researches with SMEs and academia to contend with the changes in industrial environment, including insufficient construction periods caused by regulations on working hours and environmental issues such as fine dust and noise pollution. In particular, the dry modularization technology for rooftop structures and localized conveying pipelines for skyscraper have spread the coexistence value of generating new demand and increasing sales.

R&D investment value	Number of joint R&D patent applications and registrations
2.6 billion KRW	31 cases

### Introduction of global technological advancement in concrete conveying pipe

Building skyscrapers requires a technology of shooting concrete to the top of the building through a conveying pipe. Until recently, high-priced European conveying pipes was an exclusive option for quality and stability. POSCO E&C has successfully developed the world best conveying technology with POSCO's Research Group, SeAn, SeAH Steel Corporation, and Myongji University. POSCO's pipe is 40 percent cheaper, 20 percent stronger, and 30 percent lighter than the imported products. The existing 13-mm thick pipe could be designed to be reduced by 7 mm thanks to the non-heat treated steel materials, reducing the work intensity of on-site workers. Safety, the most important factor in sites, was also assured through monitoring carried out for more than a year. Such monitoring was successfully applied to Busan LCT the Sharp project and Yeouido Parc One project.

Cost of 6-inch pipe compared to imported products	Revenue of subcontractors (SeAn Inc.)
Saved by 40%	Expected to rise by about 10%



#### STAKEHOLDER INTERVIEW

“

Established in 1988, SeAn Inc. is a small- and medium-sized steel pipe manufacturing company that produces a wide variety of construction materials, specifically steel components for tunnels, steel structures, railroad switches, and PCs (precast concrete). Currently, high-rise projects are on the rise in the construction market, and demand for reconstruction and apartment supplies is also continuously on the rise. However, there have been several wall bursts of conveying pipes in high-rise construction sites, resulting in various issues such as safety-related accidents, frequent demolitions and new installations, and quality degradation. We learned about such site issues during our supply of construction materials to a number of construction sites, and we, including SeAn Inc., POSCO E&C, SeAH Steel Corporation, and Myongji University, developed a concrete conveying technology for high-rise buildings through efforts made to discover solutions. In particular, we utilized the high-performance non-heat treatment steel materials of POSCO to reduce thickness and weight on top of improving the quality, thereby securing economic efficiency as well. The replacement cycle also became much longer than it used to be, allowing our products to earn a “thinner yet stronger” title.

We believe that the development of concrete conveying technology for high-rise buildings was successful because various companies and organizations such as large companies like POSCO E&C and POSCO, as well as small- and medium-sized companies, including SeAn Inc., Construction Equipment Co., Ltd., Chemius Korea, and Myongji University, sympathized with a single issue and had a common goal to address it. As such, we look forward to our outstanding technology successfully making an entry into the global concrete conveying pipe market in the future, enabling the domestic construction industry to experience great development.

Kim Tae-Han, CEO of SeAn Inc.

”









SOCIETY

Leader in econ-friendly construction

Risks	Opportunities
<ul style="list-style-type: none"><li>Increased environmental complaints at construction sites such as noise and particulate matter</li><li>Strengthened regulations on emissions that impact the environment such as air pollution, greenhouse gases, and waste</li></ul>	<ul style="list-style-type: none"><li>Contribution to reducing environmental impact through development of eco-friendly technologies</li><li>Expanded opportunities for eco-friendly building projects due to the development of eco-friendly residence technologies</li></ul>

In construction sites where cement, concrete, and steel bars are used as main materials, many environmental impacts such as scattering dust and noise occur. POSCO E&C strives to realize eco-friendly construction sites by applying a strict environmental management system to minimize the environmental impact arising in the construction stage. The Company has the largest number of eco-friendly building certification records in Korea, and it will continue to participate in addressing global environmental issues with focus placed on developing technologies to increase energy efficiency and reduce greenhouse gas emissions.

 <b>7</b> AFFORDABLE AND CLEAN ENERGY	7.2 Increased share of renewable energy in the composition of global energy sources	 <b>11</b> SUSTAINABLE CITIES AND COMMUNITIES	11.6 Reduced negative environmental impact per capita by strengthening air quality and urban and other waste management
 <b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION	12.5 Reduced waste generation through prevention, reduction, recycling, and reuse	 <b>15</b> LIFE ON LAND	15.4 Protecting the ecosystem including biodiversity

Development of dust inhibiting technology

Dust reduction by

71 %

(Compared to ordinary water sprinkling)



LEED certification

17 certified buildings



Greenhouse gas emissions

46,903 tCO2eq



2019 Competition for Excellence in Environmental Management

Chairperson's prize from the Environment & Labor Committee, the National Assembly of Korea

Ministerial Award of Environment

Ministerial Award of Land, Infrastructure and Transport



Environmental impacts

Managing on-site air quality and atmospheric particulate matters

Integrated response system for air quality risks

In construction sites where a large amount of cement and soil are used, voluntary efforts are necessary to reduce dust due to high levels of scattering dust. In 2019, POSCO E&C and the Ministry of Environment signed a voluntary agreement to reduce particulate matters to minimize environmental impact on communities in which construction sites are located. Through this agreement, the management of particulate matters will be enhanced through a graduate restriction on the use of aged construction machinery at construction sites, The Company has installed portable measuring instruments to measure scattering dust and disclosed the measurement results obtained on the electronic display panel. In addition, from December to March during which the seasonal control system for particulate matters comes into effect, the Company focuses on monitoring and managing the generation of particulate matters at construction sites to protect the health of local residents.

- Key provisions in the voluntary agreement on reducing particulate matters

Pilot disclosure of measured particulate matters during the high-concentration period during winder (Dec. - Mar.) and result monitoring

Restriction on the use of aged construction machinery during the high-concentration period and prohibition on the use of lignite in curing concrete

Strengthened measures such as refraining from outdoor work, road sweeping, and installing anemometer when an emergency reduction measure is enforced

Application of multiple environmental control system

POSCO E&C applies the multiple environmental management system to reduce noise and dust generation at construction sites. As the previous dust nets installed around construction sites were insufficient to reduce noise and dust, they have been replaced with soundproof panels and system scaffolding, causing an effective reduction and allowing simultaneous installation of work footholds and safety handrails to reduce accident risks. In addition, during the construction of an underground parking lot, the top down method, which first constructs the ground floor first, was adopted to curb dust spreading to the ground. Such efforts for efficient reduction in noise and dust were rewarded by the chairperson's award of the environment and labor committee of the National Assembly in the construction environment management competition held by the Ministry of Environment and the Ministry of Land, Infrastructure and Transport in 2019.

- Improved multiple environmental management system

As-is	To-be
<ul style="list-style-type: none"><li>Steel pipe scaffold, dust net</li><li>Bottom up construction from the lowest floor to the ground floor</li></ul>	<ul style="list-style-type: none"><li>System scaffold, soundproof panel</li><li>Top down construction from the ground floor to the lowest floor</li></ul>

Development of dust inhibitor and surface hardener

The open soil storage at the construction site and the movement of vehicles on unpaved roads are the primary causes of dust generation. Despite the measures enforced such as sprinkling water once a day and installing dustproof covers to comply with the Clean Air Conservation Act, dust kept being generated depending on the weather condition. Accordingly, we developed eco-friendly dust inhibitors and surface hardeners that are capable of drastically reducing dust generation while complying with the law. As a result of the pilot application to the sites, the effect of reducing dust by 71 % using dust inhibitors compared to ordinary water sprinkling was verified. In addition to such dust reduction effect, the time and work required were also reduced, as evidenced in the Company's receipt of the ministerial award of environment in the best practice competition for the construction environment management in 2019. The Company will have the technologies certified and rapidly applied to other sites to bring forth eco-friendly construction sites.

- Effects of dust inhibitor

Classification	Water sprinkling	Dust inhibitor
Frequency	4 times per day on average	once per day
Time required	8 hours	2.5 hours
Controlling effect	Sprinkled again due to immediate drying	More than twice compared to water sprinkling

- Reduced water consumption due to reduced water sprinkling
- Reduced accidents due to reduced frozen road in winter

- Effects of surface hardener

Classification	Dustproof cover	Surface hardener
Frequency	Manual installation and removal	Sprinkled one per day
Time required	5 hours by 2 worker	1.5 hours by 1 worker
Controlling effect	Repeated dust generation due to wind	Easy and rapid sprinkling available

- Not required for labor to cover installation and dismantling & reduction of waste



## Environmental impacts

### On-site noise pollution management

#### Environmental complaint response and management protocol

Many environmental complaints generate issues such as suspended or delayed construction. Therefore, it is essential to respond to complaints through continued efforts to reduce noise and amicable communications with local residents. To this end, POSCO E&C predicts and analyzes the 3D noise damage inflicted at each location adjacent to the construction site to prevent future complaints and installs adequate preventive facilities to respond to complaints. In addition, the company distributes the environmental complaint management guidebook at each construction site and provide training for responding to complaints, thereby improving the ability of site workers to respond to complaints of local residents.

#### Implementation of noise reduction construction methodologies

During the process of dismantling aluminum molds used for framework erection, noise over 150 dB is generated. In response, POSCO E&C has developed a noise reduction construction method to minimize impact noise and prevent noise transmission to the areas. First, the Company replaced the materials of the previous polycarbonate noise barrier with the vinyl bubble mesh noise shield. The vinyl bubble mesh sheet not only has excellent noise insulation effect but also has the advantage of low price and easy installation, making it easy to adopt at construction sites. In addition, EVA foam shock-reducing materials with excellent shock absorption and flexibility were used to insulate the impact noise generated from the dropping aluminum molds. The effect of vinyl bubble mesh noise shield and EVA foam measured showed the noise reduction by about 24% compared to the previous method\* and the patent obtained for the construction method improved external reliability of the Company.

\* Based on the space of 20m, the noise generated from the previous method (84.7dB) and the new construction method was measured and compared.

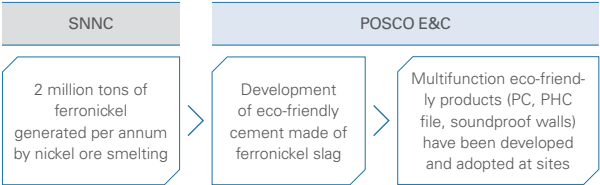
- Development of noise reduction technique for apartment framework erection

As-is	Receiving and lowering in groups of two	Drop-Down approach	Polycarbonate noise barrier
	4 times higher labor cost	Noise generated by free falls	Large effect of noise insulation, but impossible ventilation and excessive cost of installation
To-be	Development of vinyl bubble mesh sheet noise shield		Made of EVA shock-reducing materials
	• Cheaper than polycarbonate • Easy to install		• Excellent shock absorption • Lightweight

### Virtuous cycle of waste resources

Ferronickel slag is a waste produced during the ferronickel manufacturing process, generated at around 2 million tons each year. POSCO E&C, along with 16 small and medium-sized enterprises and research institutes, has successfully developed eco-friendly cement made with ferronickel slag as a raw material to be recycled as raw materials for cement and as aggregates. Eco-friendly cement has improved corrosion and life expectancy by over 30% compared to conventional cement, while its CO2 emissions are about 17 times lower than limestone processing and its impurity content is also low. This development of eco-friendly cement has allowed the Company to pioneer the waste virtuous cycle market by recycling 2 million tons of ferronickel slag that SNNC had previously dumped entirely, and the Company will continue to strengthen its eco-friendly technology by applying eco-friendly cement to domestic and overseas sites and PC structure commercialization in the years ahead.

- Recycling of ferronickel slag



- Achievement marked by an award granted to the ferronickel recycling technology

#### Won the IR52 Jang Young Shil Award



2019 Best Practices Competition for Construction Environment Management



#### Won the Ministerial Award of Land, Infrastructure, and Transport

### Protection of animal and plant habitats adjacent to construction sites

POSCO E&C is facilitating activities to protect the animal and plant habitats nearby the roads, plants, and construction project sites. Therefore, domestic sites perform various animal and plant protection activities for wild animals such as otters and Eurasian oystercatchers, as well as maehwamarum habitats, and in the event where wild animals and plants are found to inhabit nearby overseas construction sites, the Company helps to preserve biodiversity in the ecosystem by moving them to safe habitats.

## Technology advancement for eco-friendly dwelling

### Green building certification

The eco-friendly buildings and building energy efficiency are drawing particular attention as environmental issues such as climate change and greenhouse gas continue to come to the fore. POSCO E&C is striving to develop construction technologies that save energy and reduce greenhouse gas emissions, and retains the largest number of LEED\* certifications in Korea, leading the way for the green construction technology.

\* LEED: Green building certification system in the United States

### Using technology to improve building energy efficiency

The government's zero-energy roadmap is enhancing the role of the construction industry to build zero-energy buildings. In response to the drive launched by the government, POSCO E&C is fully focused on developing building insulation and energy efficiency technologies. Thus, the corporate support hub in Pangyo Techno Valley built in 2017 had been applied with the passive technology\* and active technology\*\*, acquiring Korea's first zero-energy certification. In addition, the Company double-layered insulation with high thermal conductivity on the vulnerable areas to create a pleasant indoor environment with no need for concerns over dew condensation.

\* Passive technology: Technology that improves the insulation performance to reduce energy consumption for air-conditioning and heating

\*\* Active technology: A technology used to increase heating and cooling efficiency by utilizing new and renewable and high-efficiency facilities

### Particulate sensor light technology

The monitoring stations for fine particles in the air are not sufficient, and the measurement locations are inconsistent, making it difficult to accurately check the air conditions in the desired area and specific complexes. POSCO E&C has developed and applied security lights for fine particles to check the concentration of fine/ultrafine particles within apartment complexes. The installed security lights in the complex measure the fine particle data directly, and the results are sent to the surrounding security lights, wall pads within each household, and AiQ apps for the occupants' smartphones, and the lights are lit to indicate one of four grades. The technology is meaningful in that it allows the identification of the exact concentration of fine particles in each of the complexes in the area.

### SPECIAL ISSUE

#### Understanding radon in everyday life

##### What is radon?

Radon is a colorless, odorless gas produced by the decay of uranium in soil and building materials, a naturally occurring radioactive material that exists everywhere on Earth. Radon is a radioactive substance classified by the World Health Organization as a Group 1 carcinogen. However, the U.S. Environmental Protection Agency (EPA) provides that short-term exposure to radon does not lead to lung cancer, as only continued exposure to high concentrations for decades will create the risk of lung cancer.

##### How do we reduce indoor radon in our everyday lives?

Proper ventilation is essential as indoor spaces can accumulate various pollutants such as fine particles and CO2 as well as radon. In Korea, it is important to make good use of ventilation system as it has been mandatory to install ventilation facilities inside newly built apartment buildings with 100 units or more since 2006. According to the Ventilation System Manual published by the Ministry of Environment, the indoor air quality becomes significantly improved through natural ventilations with open windows carried out 3 times a day for 10 minutes each time or machinery ventilation facilities run for around 2 hours. It is essential to make sure that indoor air circulate through periodic ventilation in everyday life. POSCO E&C conducts tests for radon substances in each stage of construction to satisfy government standards and protect the health of apartment residents. During the design stage, the Company examines the list of radon-related materials, and while in the construction stage, radon testing is carried out when bringing in materials. In addition, measurement results are disclosed on the bulletin board and website of the management office of apartment buildings through the measuring agency.

\* Understanding Radon, the Radioactive Substance in Everyday Life, Ministry of Environment, 2016

\* Ventilation System Manual for Apartment Buildings, Ministry of Land, Infrastructure and Transport, 2019





## SOCIETY

# Sharing value with the community

### Risks

- Various social and environmental issues arise in the regions surrounding domestic and overseas construction sites
- Increased demand for socially responsible activities of companies

### Opportunities

- Contributing to regional development by addressing issues in the local community
- Strengthening the corporate citizenship philosophy through social contributions made at home and abroad

POSCO E&C empathizes with various social issues arising from local communities and takes part in addressing the issues as a reliable corporate citizen and a member of the community. The Company contributes towards addressing social issues at home and abroad related to employment, culture, education, and health care through cooperation with external organizations such as government agencies, local governments, and non-profit organizations built upon self-determined engagement in voluntary work by its employees. POSCO E&C will continue to pave the way for its affiliated local community to progress towards a better society with care for and sharing with its neighbors.



3.4 Reduction in premature deaths caused by non-contagious infections through prevention and treatment, and enhanced mental health and well-being



4.4 Increase in employment, quality jobs, the number of youth and adults with technical and occupational skills required for starting their own business



8.9 Promotion of unique regional culture and specialties and contribution to job creation



11.1 Assurance of sufficient safe housing and access to basic services for all and improvement of slums

Beneficiaries of residential environment improvement program

**326** households



Skilled construction workers training program

**100** persons



Talent donation volunteer group

**16** teams  
**501** members



Participation rate in the 1% sharing donation

**99.6 %**  
(58.0% in 2018)



## Empathizing and addressing challenges of the local communities

### Contribution to the local society through private-public cooperation

POSCO E&C is driving the Collective Impact\*-type of projects to enhance the influence and transparency of social contribution projects. Based on business agreements with government agencies, local governments, and non-profit organizations, the Company is planning collaborative projects, monitoring the process, and improving shortcomings through meetings to address community issues.

\* Cooperation between different sectors to address complex social issues

#### • Key cooperation projects

Classification	Agency	Project name	Time of conclusion
Governmental organization, Local governments/ Regional agencies	Ministry of Culture, Sports and Tourism	• IT and cultural education for children and cultural exchanges for residents	2012
	National Fire Agency	• Residential environment improvement for fire prevention	2013
	Jungbu Regional Employment and Labor Administration	• Mentoring for university student for jobs • Construction education	2019
	Incheon	• Regional children's centers, 'One&One Volunteer'	2010
	Incheon Metropolitan City Office Of Education	• Construction education	2016
	Incheon Facilities Corporation	• Revitalization of parks in Songdo International Business District	2015
Medical institution	Inha University Hospital	• Overseas medical support	2011
Non-profit organization	Korean Red Cross	• Love-sharing blood donation	2006

[ Fire prevention, improvement of residential environment / Medical aid overseas ]



### Housing and health care improvement program for the underprivileged of the community

#### Fire prevention and residential environment improvement programs

POSCO E&C is promoting projects specialized in industry for the underprivileged at home and abroad. The Company has been working with the National Fire Agency to improve the residential environment for fire prevention since 2013, and they established the House for Hope Volunteer Group consisting of on-site employees, local firefighters, and citizens. The group transformed the space vulnerable to hazards by repairing and installing fire prevention systems for the underprivileged. In 2019, the Company upgraded the residential space of 326 households, allowing the Company and its sites to receive the prizes from the Minister of the Interior and Safety and the National Fire Agency.

#### Health care services for vulnerable social group

POSCO E&C conducts medical support to improve the quality of life for the underprivileged at home and abroad. Since 2011, with Inha University Hospital, the Company has provided medical services and supplies tailored to local needs such as ophthalmology, pediatrics, otolaryngology, and orthopedics near its overseas sites. The Company provided education to have good hygiene habits and conducted health checkups. Medical support has been offered to 1,000 persons each year in India, Vietnam, Laos, and the Philippines, thereby achieving a number of 10,000 beneficiaries. Also, the Company has provided oriental medicinal support in Myanmar, Bangladesh, and Vietnam with the Korean Oriental Medical Service Team Abroad (KOMSTA), since 2017. And, Korea University Medical Center, Samcheok Medical Center, and Raphael Clinic for migrant workers participated in treatment for residents and foreign migrants in Samcheok in 2019.

#### • Domestic and overseas medical support

Region	Participants	Beneficiaries
Samcheok	180 persons from Korea University Medical Center/National Medical Center/POSCO E&C	254
Matabari, Bangladesh	26 persons from Medical Volunteer Group of Inha University Medical Center/POSCO E&C	1,542
Vung Tau, Vietnam	26 persons from Korean Medicine Service Team Abroad/POSCO E&C	1,291

#### Anticipated impacts

- Reduction in social costs such as medical expenses to prevent diseases and the loss of lives
- Maintenance of health and increase in labor force through medical aids



## Empathizing and addressing challenges of the local communities

### Quality of life improvement program for the local communities in need

#### Donation of rehabilitation equipment for children with disabilities

To help disabled children adapt to society, POSCO E&C, donates rehabilitation equipment to the school for the disabled in Riyadh, Saudi Arabia. In addition the Company has provided audio-visual multimedia rooms for emotional stability during their growth period. POSCO E&C will remain fully committed towards participating in community issues confronting the strategic countries of the Company to seek mutual growth.

#### Driver's license program for the immigrants

In order to offer economic independence and stable living support to foreign migrants, POSCO E&C has been supporting the acquisition of driver's licenses for them in Incheon since 2011 together with the Incheon YMCA and Incheon Metropolitan Police Agency. We established the "Wonderful Driving" website that provides online training courses such as driver's license acquisition procedures, functional tests, and driving precautions in 10 languages, including English, Chinese, Japanese, Thai, Vietnamese, Indonesian, and Mongolian. We operate these courses online and on the mobile web so that foreign migrants can receive driver's license acquisition training anytime, anywhere. In the first half of 2020, the website became fully accessible to migrants in other regions who were having difficulty due to the prolonged impact of COVID-19. We will continue to support them so that they can adjust to Korean society and become independent.

#### Anticipated impacts

- Reduction of medical costs through rehabilitation support for children with disabilities
- Foreign migrants expected to enter society through economic independence

[ Wonderful Driving website ]



## Nurturing future generation talent

### Support for job creation and self-reliance of youth

#### Skilled construction workers training program

Most countries into which the Company has made entry are developing countries. Due to high unemployment rate and lack of training centers for professional skills, the Company sites suffer from difficulties in obtaining skilled construction workers. In response, POSCO E&C has opened training centers to foster skilled construction workers in areas nearby overseas sites to provide the theoretical and practical training of basic construction skills such as electricity, facilities, welding, and safety for youth. After completing the training program, they become linked to the construction sites of the Company through employment as skilled construction workers, thus securing skilled labor, while also contributing to job creation and self-reliance of local youths.

#### • Outcome of training construction craftsmen overseas

Region	Major courses	Training completion
Jakarta, Indonesia	Basic construction theories and practices (rebar, carpentry, masonry, plastering, electricity, plumbing, etc.)	100 persons
Yangon, Myanmar		60 persons

[ Training of skilled construction workers among the youth in Indonesia ]



#### Support for the next-generation construction-related startups

The support from specialized companies is a great help for startups who have business ideas, but have difficulty commercializing them in early stages. POSCO E&C supports young people who wish to start their own businesses through a startup competition for the field of the next-generation construction in Incheon. In 2019, six tasks were selected at the first competition through experts from the business divisions by inviting employees' participation on matters requiring improvements during construction. Mentoring support by site hands-on personnel of the Company was provided for two months to materialize selected tasks and three teams were finally selected, which have since joined the Startup Incubation Center of Inha University to grow as startups that improve the quality at construction sites. In addition to creating local jobs and reducing youth unemployment, the startup support activities are also designed to contribute towards improving the quality of construction through supplementation to be applicable to construction sites.

#### Anticipated impacts

- Nurturing skilled construction workers among overseas youth expected to help them engage in economic activities to provide for their family
- Economic effects expected by addressing job shortage and sales of startups' products

[ Startup competition for the field of the next generation of the construction industry / Happy Builder Volunteer Group ]



### Global exemplary citizens

#### Happy Builder, University Student Volunteer Group

In 2011, POSCO E&C launched Happy Builder, the global volunteer group of university students, the first among the construction companies, and has supported university students to develop global leadership. Based on the slogan, "Shape the World with Your Talent," the Company selects students every year to engage in social contribution activities, such as residential environment improvement activities, career exploration mentoring for middle school students, and international cultural exchanges along with its executives and employees. The activities enable participants to communicate with local residents at home and abroad and experience to address issues in local society, thereby contributing to their growth as global model citizens.

#### Fostering cultural diversity in strategic markets

POSCO E&C, together with the Korean Foundation for International Cultural Exchange, conducts cultural and social contribution near its overseas sites in order to improve the environment of IT and cultural education for children and adolescents and provides cultural experiences for local residents. With the 70th anniversary of Korea-Philippines diplomatic relations in 2019, POSCO E&C carried out 'Global Harmony' activities in the Philippines with Happy Builder. Happy Builder and local volunteers provided education on IT and Korean culture for 235 elementary school students and presented K-pop and traditional Korean performances at a cultural exchange festival with more than 1,000 local residents attending. The Company also built the 'Creative Room' at Simlong Elementary School and it will be used for reading, playing, and audio-visual enjoyment to improve students' creativeness.

#### Anticipated impacts

- Expected to cultivate talents by providing various educational environments for culture, IT, etc.
- Enhanced global corporate citizenship image within local communities located nearby sites

[ IT and cultural education for overseas children and teens ]





## Nurturing talents for the future generation

### Talent development for children and teenagers

#### Dream Tree Scholarships for the teenagers

To foster the future generations, POSCO E&C has been delivering Dream Tree Scholarships for teenagers in low-income families since 2012. The scholarship fund is raised by aggregating donations collected for a year through the “Piggy Bank of Love” placed in each department and site offices at the beginning of each year and the ethical fund raised through fees paid for outside lectures and in-house auction proceeds for holiday gifts. In 2019, the company delivered scholarship to 35 students in Incheon and Pohang to help them develop their dreams.

#### POSCO E&C teams matches with local children's centers for One & One activities

Since 2010, POSCO E&C has been holding One & One events, which are volunteer activities conducted through 1:1 affiliation between departments and regional children's centers, to create family friendly community in order to overcome the low birth rate. In 2019, 37 departments of the Company visited 37 children's centers to offer mentoring and leisure activities, and delivered funds for under-funded children's centers. In particular, through a business agreement with the Incheon Metropolitan City Office of Education in 2019, the Company provided invention classes and invention and science camps to encourage curiosity about inventing, and held a sports day to enhance physical development and community spirit, providing support for growth of children.

[ Invention and Science Camp / volunteer work of affiliated departments ]



### Operation of the free-semester system for construction education of middle school students

In order to respond to the implementation of the free semester system for middle school students, a national education policy project, the company signed a business agreement with Incheon Metropolitan City and the Incheon Metropolitan City Office of Education in 2016 and designed the construction training program as an experiential education program for teenagers. The Talent Donation Volunteer Group and the volunteer group of university students of POSCO E&C visit middle schools to support career exploration for adolescents through vocational education in construction for fields such as architectural, plant, civil engineering and construction. Since 2017, the Company has extended its activities throughout the nation, providing education to a total of 9,617 students from 104 schools. POSCO E&C will continue to help students to grow their interest in construction industry and to transform into future talents with this program.

#### Children's Choir Competition in Incheon

To improve the musical abilities of local children and to provide opportunities for them to show their talents, POSCO E&C holds the Children's Choir Competition in Incheon. Since 2012, the company has held the choir competition for children's centers in Incheon affiliated with the Company. And in 2016, it firstly launched the children's choir competition in Incheon and expanded the event's scope to include elementary schools and welfare facilities in the region to offer the opportunity to more children. Regional children's centers are provided with instructor fees and costume expenses for the competition. As a corporate citizen, the company provides support for the development of musical potential of children and seeks to cultivate their community spirit and emotional health through cooperation.

#### Anticipated impacts

- Reduction in social costs required to run after-school care classes
- Economic activities expected through the design of students' future careers

[ 2019 Incheon Children's Choir Competition ]



## Active employee participation in social contribution

### Caring for our neighbors through talent contribution

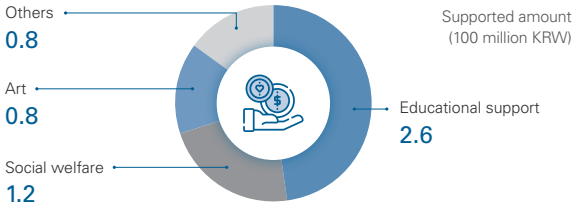
In 2015, POSCO E&C launched the Talent Donation Volunteer Group to engage in a variety of volunteer activities built upon the knowledge, skills, and experience of employees. In 2019, 16 groups (501 persons) were included, and all executives participated as advisors to offer their support. The groups that donate various talents, such as residence improvement, choir, and safety, perform 3,014 hours of activities and practice their love for neighbors, with neglected people in Incheon, Pohang, and Gwangyang.

### Growth of 1% sharing program

Executives and employees participate in the 1% sharing contribution that involves donating 1% of their salaries. The Company contributes the same amount raised by executives and employees to the POSCO 1% Sharing Foundation through the matching grant method\*. In 2019, 99.6% of all executives and employees participated in contribution, and the 1.08 billion KRW with matching grant will be spent on activities in 2020. To enhance transparency of the fund and to encourage employees, the company operates the 1% Sharing Project Selection Committee to share the performance and to identify their needs.

\* The company contributes the same amount as the employees' contribution.

#### • Social contribution activities using the 1% sharing fund



### Idea proposal contest for social contribution

POSCO E&C holds the idea proposal contest for social contribution activities to encourage the engagement of the 1% sharing and to improve communication. The company receives various activities associated with business or support for youth, and selects the excellent proposals after screening of ideas by members of the 1% Sharing Project Selection Committee. Excellent proposals are granted awards and reflected as projects for the following year.

#### Anticipated impacts

- Enhancement of volunteer mindset through voluntary participation of executives and employees
- Improving the sense of corporate citizenship of executives and employees

### SPECIAL ISSUE

## Support for preventing the spread of COVID-19

### Dream kit support for childcare facilities

POSCO E&C is striving to prevent the spread of infectious diseases among the youth of vulnerable classes. We created Dream Kits to prevent infection of the youth in Group Homes, childcare facilities, and distributed them to 17 Group Homes in the Incheon area. The Dream Kit consists of hand sanitizer, masks, and healthcare products, as well as vitamins for immunity and books for emotional development. The kits were offered as a support to more than 100 children so that they can live healthy and safe lives.

### Disinfection support of multi-use facilities for the citizens of Incheon

POSCO E&C is performed disinfection activities for residents in the Incheon area who are struggling with hardships brought on by COVID-19. Around 40 executives and employees carried out disinfection of public toilets and playgrounds in Songdo Central Park, Michuhol Park, and Haedodji Park in Incheon. More specifically, they carefully disinfected spots such as door handles and benches, and placed sanitizers in public toilets to enhance the sanitary control. In addition, by conducting sterilizations and disinfections of Bupyeong Underground Shopping Center, a facility, together with a specialized quarantine company, we alleviated citizens' concerns related to multi-purpose facilities. As such, as a corporate citizen of Incheon, POSCO E&C regularly conducts disinfection activities until the COVID-19 pandemic is over, contributing to the health and protection of local residents.

[ Delivering Dream Kits to childcare facilities ]





# SOCIETY

## With POSCO E&C



Development of local community and ensuring happiness for the members of the community can be achieved by understanding and facing the challenges together to resolve the issues. POSCO E&C pursues diverse social contribution activities to add value of sharing prosperity with the community.

### A guide to the dreams of local youth

POSCO E&C has continued to carry out career training for the youth. In response to the government's educational policy of the free semester system, the construction education program developed with the Incheon Metropolitan Office of Education was provided in Incheon and nearby sites nationwide. And the Company took part in relay lectures on the construction sector organized by the Jungbu Regional Employment and Labor Administration to support career exploration within the construction sector for over 300 students from liberal arts and specialized high schools. POSCO E&C will encourage interest of future generations in the construction industry and support their dreams through our stories as construction personnel.

Construction education for middle school students  
Provided 104 times

Accumulated beneficiaries of  
9,617

### Practical mentoring to help university students find employment

POSCO E&C operated the mentoring program through talent contributions to provide university students seeking employment with the opportunity to obtain more practical advice. The Company recruited candidates through the network of university job centers supported by the Jungbu Employment and Labor Administration, and organized a volunteer group of 50 employees in the fields of construction, civil engineering, and plant construction, and general office employees in department of social contribution, administration and public relations to be responsible for actual communication. The Mentoring Volunteer Group seeks to serve as a practical guide for university students through various types of mentoring activities about job fields of construction companies, field work, and welfare and benefits, including field trips to the construction site in Songdo.

Mentoring for university students  
Participated 300 students

The head of the Jungbu Employment and Labor Administration  
Awarded with the citation



### STAKEHOLDER INTERVIEW

“

In March 2019, with the job-hunting process ahead, I participated in a mentoring program with employees of POSCO E&C at the Jungbu Regional Employment and Labor Center. Among the five mentoring programs provided, the most impressive and helpful activity was to interview an incumbent employee. During the course of this interview, I was able to fully grasp from A to Z through the stories that only executives and employees of POSCO E&C could know. In addition, with the recommendation of a mentor working in the industrial plant department, I took part in the overseas construction and plant expert training course organized by the International Contractors Association of Korea during my vacation. By learning the FIDIC and EPC, this course allowed me to expand the spectrum of related job knowledge, covering not only construction projects, but also overseas constructions and the plant industry. Since then, I have continuously maintained a network with respective mentors while preparing for a job at POSCO E&C and received feedback for personal statement and job interviews as part of the required screening process for employment.

Ever since I got to know POSCO E&C, it has been the 'girl of my dreams' and I prepared to get the job with the mind of winning the heart of the girl of my dreams. In this process, the mentoring program set a direction that changed my indefinite plans into clear plans, and served as a reliable aid driving me to my goal. Thanks to those who worked hard to provide mentoring programs to students, I got accepted to work at POSCO E&C. As an employee of POSCO E&C, I also want to participate in mentoring programs as a mentor, not a mentee, and help someone else accomplish their dream.

Lee Dong-Won, Building Business Division, POSCO E&C

”





## PEOPLE

# Prioritizing site safety

### Risks

- Emergence of safety risks of the Company's employees and its subcontractors as a social issue
- Fallen trust in companies due to serious accidents

### Opportunities

- Restoration of corporate image through prevention of recurrence of similar accidents with in-depth analyses of accidents
- Enhanced safety competitiveness through the operation of a safety management system based on technology of the Fourth Industrial Revolution

Site safety is an important driving force for continued success of POSCO E&C. In particular, it is important to strengthen the safety capabilities and safety management of the on-site workers as safety-related accidents frequently occur due to working at height and the use of large equipment at construction sites. POSCO E&C seeks to bring forward safe and happy construction sites by putting 'site safety' as its top priority and promoting practical safety activities. Based on smooth communication between the headquarters and the site, the Company will achieve its goal of zero serious accidents by eliminating safety blind spots.



8.8 Protection of all workers' labor rights, and realization of a safe and stable working environment



11.1 Assurance of sufficient safe housing and access to basic services for all and improvement of slums

Converted accident rate

**0.12 %**

(Estimate for 2019)



Death rate from accidents per 10,000

**0.26 ‰**

(Estimate for 2019)



Inspection of construction sites by the management

**23 times by CEO**

**193 times by executives**



2018 Performance evaluation of industrial accident prevention activities

**85 points**

(Estimate for 2019)



## Creation of an on-site safety culture that complies with standards

### Enhancement of safety prevention activities

#### Establishment of technological safety process

At construction sites with many different work processes, it is important to prevent accidents by setting up hold points and proceeding to the next stage with the inspector's approval. In 2019, the Company reorganized existing hold point checklists to match the characteristics of each site and built a mobile system to operate identical hold point standards at all sites.

- Reorganization of the operating standards of hold points

Classification	Current	Improvement
Target	25 work types by division	18 work types by work classification
Description	Self-operation at site	Prior technological review and presentation of clear guides

#### Establishment of a smart safety solution

To remove blind spots in the safety management, POSCO E&C has established a cloud-based safety management platform for integrated control of on-site safety in real time. Various technologies, such as gas monitoring in confined spaces and on-site access control, have been introduced to remove safety blind spots and control possible accidents existing on sites which previously had been managed through patrols of supervisor.

- Smart safety platform

Technological features	Description
Provides combined on-site information using dashboards	Provides basic on-site information
On-site access control	Biometric access system
Monitors workers' locations	Provides status of workers by on-site work area
Real-time gas monitoring of confined spaces	Measures harmful gas concentration and alerts for concentration exceeding standards
Manages storages for Hazardous material	Manages the quantity and inspection history of Hazardous material
CCTV video analysis	Provides information on abnormalities (fire, etc.)

### Enhanced safety management of construction equipment

Equipment accidents are likely to occur at construction sites where heavy equipment is frequently used, such as plant and apartment construction sites. POSCO E&C trains safety managers for equipment and dispatch them to high-risk sites where equipment is largely used, thereby improving the level of equipment management. In particular, special terms and conditions are applied to high-risk equipment such as tower cranes and lifts to prevent equipment accidents by limiting model types, reducing inspection cycles, and operating the work team registration system.

### Efforts to eradicate serious accidents

#### Precautionary activities to prevent falling accidents

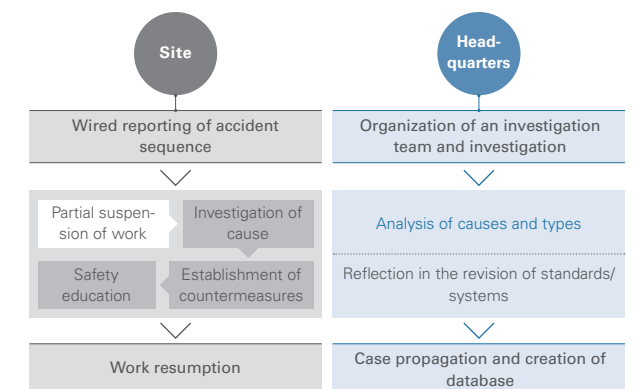
Since falling accidents account for 60% of the death in the construction industry in Korea, it is critical to adopt accident prevention activities throughout the site work. POSCO E&C reorganized the guidelines, and regulations modification system to preemptively apply the 'system scaffolding\* utilization', which is mandatory for public construction projects among the government policies to prevent falls, to private projects. Those who work at height are required to wear swing safety harness and double hooks, and the construction manager checks the safety harness hangers in advance to reduce the possibility of a fall accident.

\* Construction materials that connect standardized members through wedges and install walk plates and safety rails together

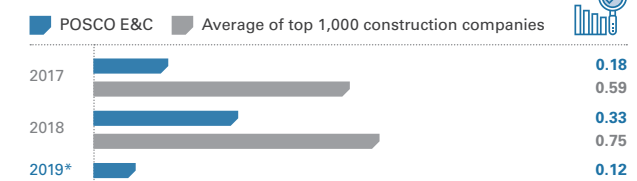
#### Eradicating similar incidents through root cause analysis

Immediate identification of site situations and real-time spread of measures based on in-depth analysis will prevent the occurrence of similar accidents. POSCO E&C reports all accidents immediately through social networking apps to the management within an hour, and operates an accident investigation team immediately after the report is filed in to share improvement measures through root cause analysis of the accident at all sites, strengthening the prevention of safety accidents at sites.

- Measures against accidents



• Converted accident rate (unit: %)



\* The converted accident rate and the average value of the 1,000 largest builders for 2019 will be officially announced by the Ministry of Employment and Labor in the second half of 2020.



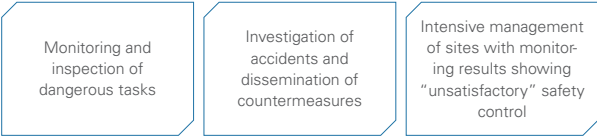
## Creation of an on-site safety culture that complies with standards

### Enhanced ability of execution for safety management

#### Enhanced control tower function

The authority and role of the central control body capable of recognizing problems through continuous on-site monitoring and disseminating remedial measures immediately is the key to realizing an accident-free site. The monitoring team of POSCO E&C, consisting of employees with an experience in construction, removes risk factors in real-time through on-site monitoring of dangerous activities, spreads the recurrence prevention measures to other sites performing the same work as the site where the disaster occurred, and then monitors the application of such measures to the sites to prevent the occurrence of similar accidents. In addition, safety managers have been granted the right to suspend work immediately after on-site violations of safety rules, strengthening their authority to perform their duties independently.

• Primary tasks of the monitoring team



### Activating communication channels for stakeholders on site

POSCO E&C runs communication channels between headquarters, sites and subcontractors to create more secure sites with various stakeholders related to each site. The Company has established real-time communication channels between the safety and health center, site managers, and safety managers to continuously spread safety issues such as safety policies of the executives and accident cases, and listen to safety-related VOCs of its business partners and discuss ways to cooperate with each other through half-yearly safety meetings with its business partners.

[ Safety conference for subcontractors ]



## Support for site-oriented safety activities

### Site oriented diagnosis and training

#### Worker-oriented safety diagnosis

POSCO E&C improves fundamental problems related to site safety through worker-oriented diagnosis, rather than facility-oriented diagnosis. Nonconformities through interviews with each class of workers are reported to the head of the safety and health center, the head of the business division, and the site PM after improvement. When unsafe conditions and actions that cause serious disasters are identified, the Company immediately suspends the work and provides safety and health education for relevant teams to enhance the safety awareness of workers.

#### Safety education for construction staff

As construction staff perform their work at the site, they need a high level of safety awareness and expertise. POSCO E&C offers safety training for each position/career of employees responsible for construction to enhance safety capabilities required for each position, and provides health education such as cardiopulmonary resuscitation (CPR) training to protect workers’ lives in case of emergency. The Company supports the acquisition of safety certificates (construction safety engineers) to improve the expertise of its employees in the field of safety.

• Safety education and training for each position

Classification	New employee	CAE (Construction Assistant Engineer)	CE (Construction Engineer)	PM (Project Manager)
Basic safety management course	●	●	●	●
Construction safety standards by work process		●	●	●
Safety and health laws			●	●
Safety awareness and leadership				●

※ Mandatory credit system is run for the promotion from new employee → CAE → CE → PM

#### Site-oriented safety education

In the event where a dangerous situation arises, the worker’s ability to handle safety accidents is crucial. POSCO E&C provides education on improving safety standards, such as on-site set-up education for the start of construction, technical safety and awareness transition education for management supervisors, and hands-on safety education for temporary structures. In addition, the Company provides on-site training by foreign safety coordinators (China) for workers who are not familiar with regulations and work methods in Korea, and offers customized training with self-developed translated educational materials.

### Strengthen on-site subcontractor's safety management capabilities

In addition to the Company employees at the construction site, it is also necessary to foster the safety capabilities of subcontractors. POSCO E&C provides safety and health management consulting to its subcontractors and supports them to build their own safety and health systems that are directly applicable to the sites through safety activities for innovative growth such as supporting the establishment of proprietary safety and health manuals, supporting the acquisition of construction safety engineers, hands-on safety activities for temporary structures, customized safety education, and on-site set-up education.

### Consistent prioritization of safety

#### Reinforcement of on-site inspection activities driven by the executive management

To build a safety culture and practice the value of safety first, the top management of POSCO E&C pays on-site visits to inspect safety. In 2019, the CEO engaged in 23 inspection activities while division heads as well as safety and health executives performed 193 inspections to review the safety management of each site and enhanced the safety awareness of site employees. The CEO and management will put top priority on managing all risks arising from construction sites to bring forth “construction sites where happiness is built on safety.”

#### Improved reward and penalization system for safety management

The standards of the reward and sanction system for safety activities have been enhanced to ensure the safe work of employees and subcontractors. An accident arising from a failure to wear safety harnesses and safety helmets is sanctioned in the same manner as a serious accident and improvements have been made to impose differential sanctions for injuries caused by accidents depending on the degree of management and injury. In order to motivate employees to carry out accident prevention activities and encourage their safety awareness, the safety-related reward standards have been improved to modify on-site safety evaluation cycles to be carried out on a quarterly basis and expanded the amount of rewards. As the construction industry’s non-disaster record certification system was abolished, the Company introduced a reward system for disaster-free completions that evaluates efforts throughout the entire period of on-site operation to enhance the effectiveness of the reward.

### SPECIAL ISSUE

#### Idea proposal system for safety management to promote a safety first mindset

POSCO E&C operates a safety proposal system to create safe construction sites together with its employees. The safety proposal system is a system through which employees and site workers propose various ideas to prevent safety-related accidents as well as serious accidents. It rewards those who have come up with excellent ideas selected through the operating committee, which are applied to the safety and health center, related departments, and construction sites. In 2019, a number of departments ranging from plant, infrastructure, building works, and safety and health as well as management planning and management support participated in the system, registering a total of 3,700 proposals. The eight ideas selected as excellent proposals are selectively being applied as a pilot measures according to each site condition. The “attachment of timers to heating fans during the curing of concrete,” which was selected as the best proposal, will be applied as a safety management measure throughout the company as it is expected to contribute towards preventing accidents in confined spaces during winter.

• Best Safety Proposals

Installation of signalman protectors and reflectors during depositing work

Unit pricing of signalman protectors and reflectors

Attachment of timers to heating fans during the curing of concrete

Reflection of related content during on-site briefing

Prior-welding of pins to beam molds to secure shores

Pilot application to Goyang MBN site

Installation of ventilation duct sleeves and internal reinforcement

Selective application according to site conditions

Installation of an integrated system form (RCS) drop-safe net

Selective application according to site conditions

Application of left-right opening cover for gang form safety recovery hooks

Modification of technical standards





PEOPLE

Vibrant corporate culture

Risks

- Stricter labor systems and laws due to the introduction of 52-hour work week
- Increased social awareness of human rights and abuse of power issues

Opportunities

- Realization of advanced corporate culture through relief of labor-management disputes based on communication
- Securing corporate competitiveness through the capability development of employees

A “happy and rewarding company” is built when its members sense the physical, mental, and life stability and an organizational culture with trust and creativity takes effect. POSCO E&C improves the capability of its employees in various fields, including expertise, organizational life and welfare, and identifies and improves necessary measures based on smooth communication. In addition, employees will play a leading role and actively engage in the activities to practice corporate citizenship in the areas of business, society, and people to transform the Company into a corporate citizen.

<div>4</div> <div>QUALITY EDUCATION</div>	4.4 Increase in employment, quality jobs, the number of youth and adults with technical and occupational skills required for starting their own businesses	<div>5</div> <div>DIVERSITY</div>	5.1 Cessation of any type of discrimination against female adults and children at all places
<div>8</div> <div>DECENT WORK AND ECONOMIC GROWTH</div>	8.8 Protection of the all workers' labor rights, and realization of a safe and stable working environment	<div>10</div> <div>REDUCED INEQUALITY</div>	10.3 Reduction in inequality by abolishing discriminatory laws, policies, and practices and assuring equal rights

Hours of education per employee

59 hours



Workplace Daycare

Built the second POKIDS daycare center



Rate of return after parental leave

94.1%



P-GWP

81 points

(8 points increase year on year)



Talent development strategy

Equal opportunity policy

Inclusive talent acquisition policy

In order to recruit talents with expertise and global capabilities, POSCO E&C runs a fair recruitment process. All job applicants in the recruitment process are not subject to unfair discrimination due to their nationality, gender, etc. The Company will continue to secure key talents based on its fair personnel system, further enhancing its business and technology capabilities.

Fair recruitment status

Disabled persons	National veterans	Former officers	Foreign nationals	
54	57	127	3	

Performance coaching program

It is critical to inspect and improve work performance to ensure organizational and individual growth. POSCO E&C has thus improved its previous system based on one-sided evaluation to a two-way communication and coaching-oriented process. The Company enhances the reliability of evaluation results by providing a venue for continuous communication for work performance feedback and identification of obstacles between evaluators and evaluatees. The Company will continue to improve the personnel management system in a variety of ways to bring change to the way we work and to build a better organizational culture.

Talent development program for the employees

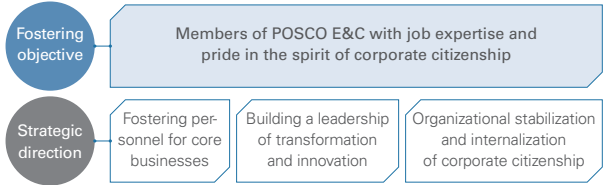
The management capability can be improved through institutional improvement to ensure that Company employees do their jobs built upon a wide view and an extensive experience. POSCO E&C develops the capability of and motivates long-term employees through rotations. In addition, the Company has further established sections of small organizations under existing group organizations, and have given mid-level managers opportunities to exercise leadership to systematically foster staff for each position.

Capability building for the Employees

Corporate citizenship-based HRD

In order to cultivate talents corresponding to corporate citizens, the Company provides education under the core strategic direction of “fostering personnel for core businesses, building a leadership of transformation and innovation, organizational stabilization and internalization of corporate citizenship.” In 2019, POSCO E&C offered 14 types of educational programs (84 courses), including 59 hours of education on leadership, jobs, language, and culture for each employee as part of its commitment to strengthening its ability to establish its presence as a corporate citizen.

Promotion of HRD strategies



Capability development for key businesses

In order to enhance the construction and job expertise of its employees, POSCO E&C runs the educational courses such as construction management academy, core job expert, and education on smart construction. In 2019, the Company introduced the course on fostering commercial experts\* to enhance the commercial capacity of personnel who perform overseas projects for the first time among domestic construction companies. The course covers the specific areas such as contract claims in overseas construction and project and process management to foster talents required for overseas projects with great volatility and risk from winning orders to final completion.

\* Commercial expert: Overseas construction expert with sufficient knowledge and experience in contractual duties and rights between the project owner and the contractor

Weaving transformation and innovation into leadership

To achieve innovative growth for the Company, it is crucial to drive the team in one direction. POSCO E&C periodically operates programs such as workshops for early stabilization of newly appointed employees as well as workshops for change management that conduct discussions on leadership responses to reinforce the capabilities of leaders. In addition, the leadership academy tailored to each position has been improved to the course geared towards the classified roles of staff and candidates for positions.

Leadership training

Leadership WS for employees by position	Group leader training course	Leadership academy
<ul style="list-style-type: none"><li>• Leadership WS for newly appointed employees</li><li>• Transition management WS</li></ul>	<ul style="list-style-type: none"><li>• Educational courses of POSCO Group University</li><li>• Management knowledge-based MBA</li></ul>	<ul style="list-style-type: none"><li>• Professional training by roles of working-level staff and candidates for positions</li></ul>

Organizational stabilization and internalization of corporate citizenship

Tailored education is provided to increase mutual understanding caused by product characteristics between organizations, and cultural differences between departments. The Company provides support to enhance mutual understanding of areas and help facilitate collaboration through workshops. In addition, e-Learning and special lectures are offered to spread corporate citizens, the philosophy of the Group, throughout the entire organization.

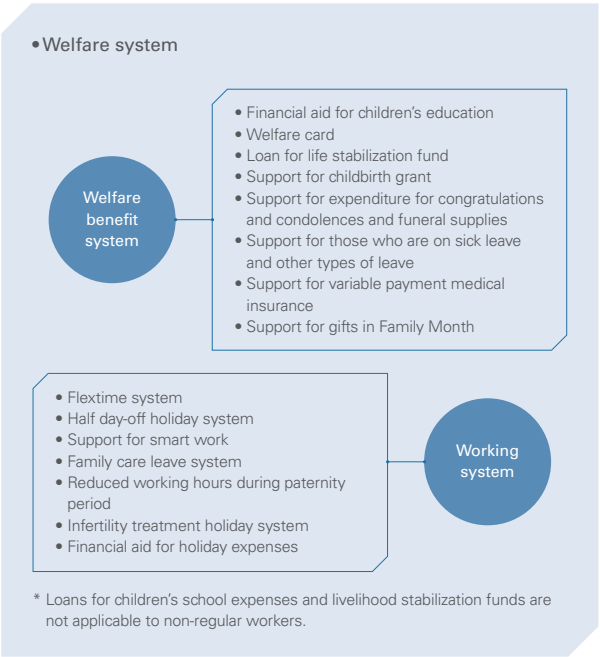


# Open communication for a vibrant corporate culture

## Energetic workplace atmosphere

### Site-worker care program

In order to create a construction site where people desire to work together, a sense of unity is required among POSCO E&C, business partners, and workers. POSCO E&C has devised guidelines on the operation of washrooms and rest facilities for on-site workers who depend on construction sites for much of their day to improve on-site working conditions, and has expanded the direct wage payment system throughout all workplaces in order to remove the risk of delayed payment of wages in advance, thereby protecting the fundamental rights of on-site workers and offering welfare benefits through various care programs for workers. Furthermore, in order to promote the welfare of employees of its business partners, the Company supports funeral needs for free, and provides a wedding venue by leveraging the auditorium of the Company office building, and operates a reward system for outstanding employees, leading the way in creating an advanced culture of construction sites as a corporation that builds a better life together.



## Proactive Communication of Labor Management Council

The previous labor-management council had limits in collecting VOCs due to the lack of employee participation. POSCO E&C created the labor-management councils for each division thereby expanding the communication channel in order to promote participation, create an organizational culture that matches the business characteristics, and develop a sense of unity. The 4-6-member council for each division strives to promote communication such as discussion within the division, collection of proposals for the company-wide labor-management council, and grievance. In 2019, the Company made improvements on working conditions and welfare benefits through the labor-management council for the entire Company and each division, and the agreed terms are applied to all of its employees.

## Spread of work-life balance culture

### Support to refresh employee engagement

The default working hours were moved to “start at 8am and end at 5pm” to ensure that employees spend more leisure time after work. The employees work an additional 10 minutes between Monday and Thursday and then spends the additional working hours to compensate for their early leave on Fridays at 4:20pm. A variety of systems including financial aid for holiday expenses, joint use of facilities of group affiliates, and partnerships with travel welfare malls are in place to ensure restful life.

### Support for personal development

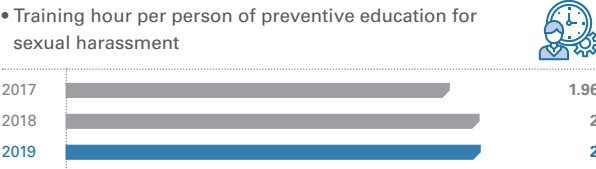
POSCO E&C permits prior spending of personal development expenses for the following year to provide support for self-regulating capability development of its employees. The scope of support for personal development expenses that had been previously limited to work-related purchases has been expanded to cover health-related classes and the limit on book purchasing expenses have been raised to support the personal development of its employees.

## Broadened welfare benefits

The welfare systems have improved to ensure that employees leads a stable life with the growth of POSCO E&C. The coverage of health checkup expenses of their spouse has been extended and accident insurance is provided for their spouses and parents. To strike a balance between work and life, the flexible diversion of personal development expenses to nursery school and kindergarten tuition fees has been allowed and the second POKIDS daycare center has been built to accommodate the nursing capacity of 134 children, thereby enabling employees to focus on their work.

## Strengthening human rights management system

To prevent any possible abuse of human rights, the casebook of labor management is distributed and the labor management education is provided for site workers and managers. Besides, the corresponding precautions have been revised in the Code of Ethics of POSCO E&C for a systematic management of human rights throughout the company, thereby taking active actions to comply with the “Workplace Anti-Bullying Act.”



# Innovation of work process

## Leadership diagnosis

The major variable affecting work immersion of employees is the ways in which their fellow employees work. POSCO E&C makes a diagnosis in the areas of organizational and performance management, and directions, reporting, meeting, trust, and communication of employees in certain positions to improve their ways of working. Those in positions of PM/group leader or higher are provided with individual feedback to provide opportunities to voluntarily improve their leadership and others in lower positions are actively encouraged to drive substantive transition in their ways of working through their supervisors' feedback and education.

## Prioritization of construction site work process

As the construction industry requires a high demand of communications between the division and the construction site, a collaboration between the two is crucial for continuous identification of difficulties at the forefront and the smooth progress in the on-site work process. Therefore, POSCO E&C measured the satisfaction for site support at 60 departments and collected the VOC of its employees to improve on-site work satisfaction. The submitted on-site VOCs were provided to the respective department to be used for improvement and the results were announced throughout the Company. POSCO E&C will continue to make improvement to build the field-oriented working culture.

SPECIAL ISSUE

### Happy Ten-Ten Campaign

POSCO E&C has selected 10 practices for its employees to follow as the Happy Ten-Ten (10-10), promoting them through posters and IPTV inside buildings to create a happy workplace and improve its organizational culture.

행복한 일터를 만들기 위한 10가지 실천사항

해피탕탕 (10-10)

당신은 몇거지나 실천하고 계신가요?

1. Job performance according to work priorities

2. Fair performance evaluation

3. Clear directions

4. Concise reports

5. Positive feedback and compliment

6. Reduced meeting hours

7. Work cooperation between departments and sites/divisions


8. Being considerate to each other

9. Improved work efficiency


10. Assured self-determination of holidays




# PEOPLE with POSCO E&C



Provide safe and pleasant work-place environment for employee satisfaction



Provide emotionally stable atmosphere for a trust oriented workplace



Provide work-life balance to ensure livelihood of the employees



Employee satisfaction affects growth of the organization and its vibrancy. Founded upon corporate citizenship philosophy and activities, POSCO E&C promotes an enjoyable workplace atmosphere to ensure the physical safety and emotional stability of the employees and in turn, increase employee satisfaction.

### Boost employee satisfaction through innovation in organizational culture

The happiness of employees leads to the company-wide happiness. POSCO E&C drives activities for the company-wide organizational improvement to transform itself into a best place to work. In January, 2019, the Company created the organizational culture innovation team to carry out improvement activities under the four themes of upgrading corporate culture, establishing the ways of working, a sense of unity under one POSCO E&C, and proliferation of mutual respect. In particular, the Company has been active in gathering the opinions of its employees to improve their satisfaction in the Company as reflected in its extensive introduction of new systems such as increased welfare plans, financial support for holiday expenses, and the opening of the second daycare center, and in its reformed organizational culture through site-oriented working culture and diagnosis of the ways of working, and Happy Ten-Ten campaign.

As a result, the P-GWP (POSCO Great Work Place) survey annually conducted for all employees to measure organization satisfaction of employees and the degree of their work immersion showed that POSCO E&C scored a total of 81 points, displaying an year on year rise of 8 points. The innovative activities for the organizational culture raised the overall pride and satisfaction of the employees, and POSCO E&C will continue to gather the opinions of its employees together with the labor-management council and raise its power of execution to earn the title as the “best company to work for.”

<b>Say</b>	
“Do you tell others about the good things about our company?”	<b>85 points</b> (▲ 9 points)
<b>Stay</b>	
“Have you ever considered moving on to a new job?”	<b>82 points</b> (▲ 9 points)
<b>Strive</b>	
“Do you encourage and motivate yourself to achieve the best performance?”	<b>74 points</b> (▲ 5 points)
<b>P-GWP</b>	<b>81 points</b> (▲ 8 points)



### STAKEHOLDER INTERVIEW

After a year of maternity leave, many working moms have difficulty returning to work while also engaging in childcare activities at the same time. It is not an easy choice to leave a young child at a daycare center. As we both work at the same office, we put a great deal of thought into how to get our child ready for nursery while also getting ourselves ready for work in a more efficient manner, and that’s why we began to send our child to POKIDS Daycare Center run by the Company. I believe that being able to spend more time together as a family and moving to the same place at the same time certainly has its privileges, and we maintain a balance between work and life as we have relatively more time to spare to get both our child and ourselves ready in the morning due to the flextime system.

POKIDS Daycare Center ensures a great bond between parents and the center, between parents, and between children, and is very considerate and understanding towards employed parents. The director and teachers take good care of our child with love and provide detailed guidance for the parents, too. Regarding children’s diet, I feel relieved because the amount and quality of meals and snacks provided by the daycare center are outstanding. Our child is also very pleased with the current lifestyle at the daycare center. In particular, the daycare center sports day where the family members of our fellow employees gathered together to participate remains a precious memory that brings smiles to our faces. I believe that the Company opened its second daycare center last year in an effort to promote its ‘happy and rewarding organizational culture’. I hope that many of our employees will continue to resort to the welfare system to balance their work with other aspects of their lives.

Sung Ji-Hye, Building Business Division, POSCO E&C



# Sustainability Management



ESG Management	84
Corporate Governance	85
Risk Management	86
Ethical management	87
Communication with Stakeholders and Materiality Test	90

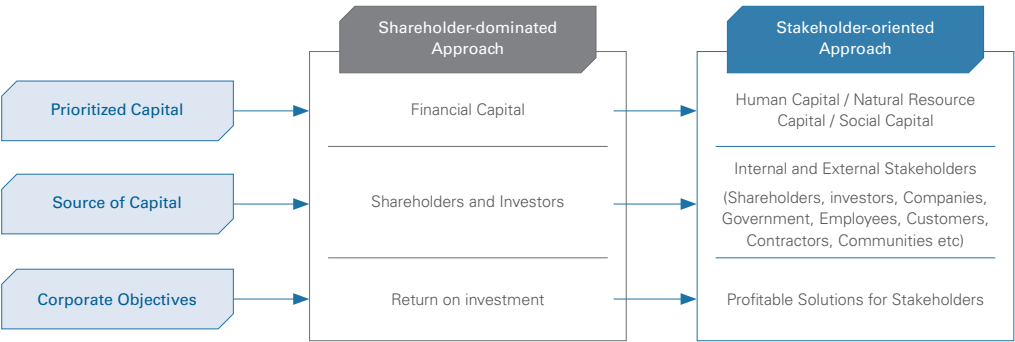


ESG Management

ESG (Environmental, Social and Governance) management is a comprehensive ERM (Enterprise Risk Management) principle adopted to maximize resilient corporate strategy in response to today's fast changing business environment. In achieving sustainability, POSCO E&C implements management policies accounting for long-term ESG risks in business operation, corporate behavior and decision-making process, as well as to commit to creating shared socio-economic value through various programs under POSCO group's Corporate Citizenship management philosophy in the areas of Business, Society and People.

As a socially responsible corporate citizen, POSCO E&C believes in establishing virtuous cycle that impacts the environment and society of which we are a part of. In particular, we acknowledge the importance of delineating unbiased management decisions material to various stakeholders, including but not limited to customers, business partners, employees and shareholders, through implementing ESG management policies and ensuring transparent and timely communication to realize the company's mandate to 'build value together.'

•Transformation in the company management paradigm



ESG Practices

POSCO E&C aims to generate business opportunities through effective management of non-financial risks in the area of environmental, social and governance, and furthermore, derive economic value that can impact the society. In delivering such value, implementation of smart construction platform throughout the project life cycle has enhanced process efficiency and product quality, which has also been a key driver for R&D based new growth. POSCO E&C is the first company to successfully implement IPD (Integrated Project Delivery) to complete an industrial plant project, and such business practice of customer, contractor and business partner will revolutionize the paradigm of construction industry. Our efforts have resulted in ranking number 1 in the Korean Quality Satisfaction Index (KS-QEI) in the residential apartment category for 10 consecutive years and in the Brand Customer Loyalty for 3 consecutive years, in addition to awarded for excellence in the quality competitiveness in the Korean National Quality Awards for the first time in the construction sector.

Future Strategy

Development of eco-friendly smart construction technology and active engagement in CSR programs will tackle environmental and social issues through innovation prescribed by ESG management policies and propel mutual growth as a part of the corporate citizenship approach. POSCO E&C will strive to lead the advancement of construction industry by committing to transparent communication with stakeholders, adopting effective governance and business portfolio management.

Composition of Board of Directors

The board of directors at POSCO E&C is composed of two inside directors and three non-executive directors. The expertise of the board of directors is secured through commission of field-specific experts and two of the non-executive directors are appointed by the Public Investment Fund (PIF: a sovereign wealth fund of Saudi Arabia).

Operation of Board of Directors

The board of directors primarily focuses on the deliberation and discussion of requirements mandatory under statutes that directly or indirectly affect the business objectives of the Company as set forth in its Articles of Incorporation, key issues pertaining to the management and finance, and other necessary issues. The ordinary BOD meetings of POSCO E&C are held on second Thursdays in January, March, May, July, September, November, and December, which may be modified depending on the circumstances, and extraordinary BOD meetings are held whenever necessary for urgent resolutions. In 2019, 10 board meetings were held to pass a total of 41 resolutions on issues such as management plans and donations.

• Performances of board of directors

Number of meetings		Number of resolutions		Attendance percentage	
2017	7	41	92.9		
2018	13	42	94.9		
2019	10	41	93.3		

• Composition of board of directors

(As of March 30, 2020)

Classification	Name	Experience
Inside directors	Han Sung Hee	Current President of POSCO E&C, previous Vice President of POSCO
	Yoon Deok-II	Current Executive Director of POSCO E&C
	Yoo Byeong-Og	Current Senior Executive Vice President of POSCO
Others Non-executive directors	Ahmed A. Al-Subaey	Current Vice President of Aramco, Saudi Arabia
	Kevin B. O'Donnell	Current Head of Global Private Investments, PIF (Public Investment Fund)

Operation of an audit system

POSCO E&C commissions an auditor through the general meeting of shareholders and commission resolution to perform audits for accounting and other tasks. The auditor has an independent authority to attend board meetings to state his/her opinions, request directors to report on sales, and access and review related documents. In addition, the Corporate Audit Department is in charge of internal audits as a supplementary auditing organization.

Shareholder composition

The shareholders of POSCO E&C are composed of POSCO with 52.8% share, The Saudi Asian Investment Company\* with 38.0%, Pohang University of Science and Technology with 2.1%, and employees and minority shareholders with 7.1%.

\*Special purpose corporation established by Public Investment Fund (Saudi Sovereign Wealth Fund)



Risk Management

Integrated Risk Management

Risk Management at the stage of obtaining orders

POSCO E&C conducts an operational process for internal reviews for all projects prior to obtaining orders in a certain scale or larger. First, a project briefing session is held to review the project summary and schedule, and then the quotation review meeting is held to verify the adequacy of order quotation and construction period. Afterwards, the risk review meeting takes place to discuss business risks such as commercial conditions and quotations, and countermeasures, while applying the standards for the rate of operating profits, compliance risks, integrity evaluation scores, and countries where projects are in progress and the projects with new work classifications to limit the high-risk projects to introduce at the project review council of high-risk projects. Ultimately, the company-wide project review council is held to determine whether to participate in the introduced projects during which the votes are kept secret to enhance transparency, and the decision is made through two-thirds vote with at least a majority of members in attendance.

Risk management at the stage of project operation

At the project operation stage during which various risks are in place, a thorough risk management is required to achieve project success and objectives. POSCO E&C secures financial integrity and stability through the operation of the health check system that provides a step-by-step financial information during the project operation. In the event where certain risk standards are exceeded in the financial data collected via big data, alert messages are sent to the management and the project manager to deal with risks preemptively. Furthermore, the cQSS+, a customized site innovation activity involving quick six sigma (QSS), which is unique to POSCO, tailored for construction is in operation to detect opportunity factors and risks early and make continuous improvement.

• Risk management



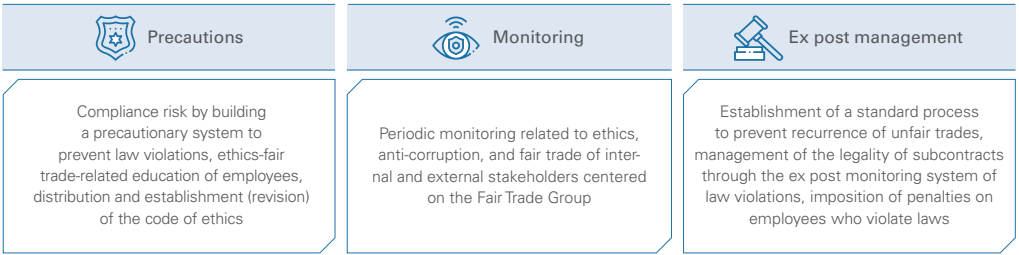
ESG risk management

POSCO E&C manages a wide range of CSR risks in terms of economy, society, and environment during the performance of overseas projects to ensure success in the projects, thereby growing into a sustainable global construction company. To this end, the Company manages risks present in environment, safety, process, quality, etc. at overseas project sites through the PLC (project life cycle) checklist. Besides, the Q-HSE Country Report is used for systematic management of local laws, labor environment, and country-specific Q-HSE issues. The Company inspects and manages risks by circumstances at the early sites based upon the database built by overseas project sites. In addition, when reviewing business orders, the company monitors ESG-related matters, from business briefings to the RM stage, and adds ESG review details to the project review report to enhance the understanding of ESG management by executives, helping management determine whether to carry out the project.

Ethical management

Ethics - fair trade promotion system

The ethics-fair trade issues of POSCO E&C are exclusively handled by the Corporate Audit Department immediately affiliated to the CEO. Continuous efforts are made to spread the value of integrity, fairness, and trust through the Company premised upon the vision of “Clean POSCO E&C.” Practical monitoring activities are carried out to minimize unethical-unfair risks and thorough ex post management activities are enforced against inevitable illegal activities and unfair conducts.



Revision of the Code of Ethics

Since its declaration of the Code of Ethics in 2003, POSCO E&C has revised its Practice Guidelines of Ethics according to the "Workplace Anti-Bullying Act" which was newly imposed in 2019. It stipulates that no discrimination or harassment shall be practiced based on race, nationality, gender, age, academic attainment, religion, region, disability, marital status, sexual orientation, etc. and the Company operates a separate center for reporting bullying and sexual harassment in the workplace.



Ethics - enhanced law-abiding spirit for fair trade

Illegal act reporting system

POSCO E&C operates Cyber Sinmungo for internal and external stakeholders to receive anonymous complaints regarding illegal acts and fair trade-related violations in connection with the Company and its employees. Besides, guidance stickers for the tile line is distributed to the sites to allow Company employees as well as the employees of its subcontractors to tip off illegal acts through the reporting system of POSCO E&C.

The Clean-POSCO system has been designed for the self-review of all kinds of improper solicitations arising from project sites and business activities by the employees through direct recording and management to build transparent POSCO E&C. All members of POSCO E&C are required to record any illegal acts or proposals from stakeholders related to solicitation with the Clean-POSCO system. Any member who fails to record despite his/her awareness of the facts related to solicitation will be subject to severe consequences.



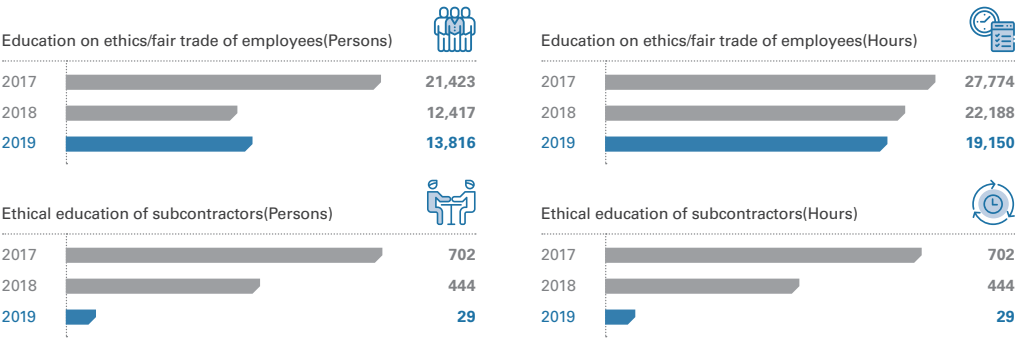
Enhanced monitoring of external stakeholders

Letters on an “ethical holiday culture” are sent to the Company employees as well as the CEOs of its sub-contractors and project managers in the name of the Standing Auditor prior to New Year’s Day and Korean Thanksgiving Day holidays, once the public holiday ends, surveys are conducted to measure the ethics of the Company employees of the project managers of its subcontractors.

Education on ethics - fair trade for employees

The compliance education is provided to all employees of POSCO E&C and its subcontractors. A wide range of education methods such as audio and visual data, and quizzes on the auditing cases of ethics and fair trade are adopted to enhance the understanding of its employees. Also, particular efforts are made to prevent the culture of fair trade from being undermined with the fair trade education tailored to certain events such as assignment of new employees and appointment of persons in certain positions. In addition, the fair trade guides are distributed at the early stages of a project and employee awareness of fair trade is enhanced through sequential programs such as collective educations at divisions and feedback education after inspection. Ethics, compliance, and anti-corruption educations were completed by 89.7% of executives and 96.1% of employees.

• Status of ethics and compliance education



\*The data on educational status of employees shows cumulative figures for each year.

Ethics Campaign

POSCO E&C has conducted four major campaigns to prevent unethical practices in the Company since 2019 with the commitment to preemptively prevent any unethical practices. Over the course of two weeks, the Company sent out five videos related to introducing the ethics promotion campaigns, bullying in the workplace, sexual harassment in the workplace, bribery and embezzlement, and information manipulation. In doing so, the Company emphasized the meaning and importance of its ethics promotion campaigns to its executives and employees, allowing them to fulfill their roles and responsibilities as members of POSCO E&C to practice ethical management.

• Four major ethics promotion campaigns

Increased awareness of the meaning and importance of ethics campaign and provided a sense of responsibility			
Bullying and abuse of power in the workplace	Sexual harassment in the workplace	Bribery and embezzlement	Information manipulation
Physical/mental wrongdoings using dominant positions and relationships within the workplace	Words and actions causing sexual humiliation and repulsion within the workplace	Actions of obtaining unjustified personal gains on the job	Actions of false manipulation of information against data ethics

Creation of a fair trade culture

Work standardization to prevent law violations

POSCO E&C has introduced the standard subcontract agreement of the Fair Trade Commission and formulated its own standard construction purchase specification to prevent any law violations from the contract conclusion stage. In addition, the Company operates the electronic contract system to maintain a fair and transparent management of the procedures and contractual documents throughout its entire purchase process.

Dispute prevention via subcontract monitoring

The Company has built a system to monitor relevant affairs such as documentary issuance and subcontract payment as mandated under the Fair Transactions in Subcontracting Act to conduct continuous/regular inspections, thereby preventing any law violations. In particular, any law violation or abuse of power in sub-contracts that is expected to give rise to a dispute between the owner and the subcontractor is thoroughly screened to prevent the issue from escalating into a real dispute.

Establishment of an ex post monitoring system for fair transactions

POSCO E&C conducts self-audits for all subcontracts with a contractual value of 500 million KRW or higher. The self-audits are carried out based on completion reports that record inspection results of completed building structures.

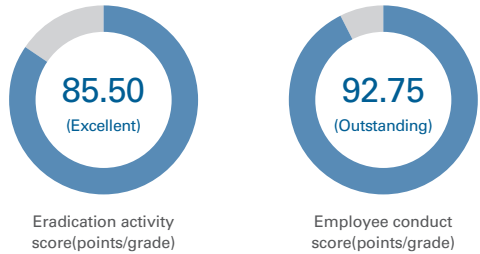
• Checklist for completion reports of subcontractors

- Status of subcontractors (construction, outsourcing, etc.)
  - Official letters received/sent to subcontractors
  - Management of guaranteed securities
  - Fair transaction risks, etc.
- Adequacy of payment for subcontractors
  - Status of work orders issued
  - Adequacy of the payment of fluctuations in prices

Monitoring for fair trade with subcontractors

POSCO E&C assumes a leading role by monitoring for fair trade in order to realize the vision of creating a better society under the management ideology of the “Corporate Citizenship: Building a Better Future Together.” POSCO E&C conducted a survey to its subcontractors about unethical conducts of employees in 2019 and received positive reviews for its eradication activities and employee behavior in relation to unethical and fraudulent activities. In addition, in order to improve opinions derived from unethical types and responsive conducts, the Company has strengthened monitoring and training on the Subcontracting Act and prepared guidelines for the protection of whistle-blowers as well as handling procedures to ensure that transparent and fair transactions are carried out between the Company’s employees and subcontractors.

• Results of an investigation into employees’ unethical conducts and abuse of power (average of the Company and business divisions)



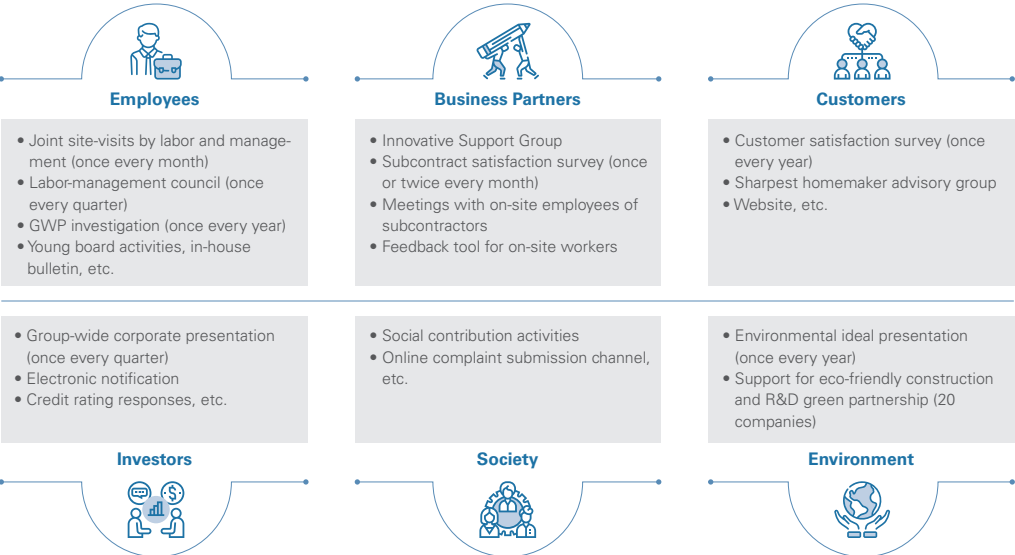


Communication with Stakeholders and Materiality Test

Communications with stakeholders

The stakeholders who deliver either direct or indirect effect upon POSCO E&C are classified into six major categories of employees, business partners, customers, investors, society, and environment, and a variety of opinions are collected through various communications channels to reflect the requirements of its stakeholders.

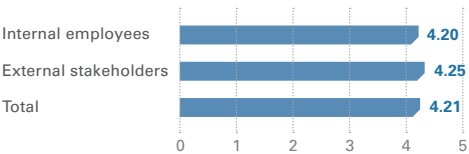
Communication channels with stakeholders



Awareness diagram for sustainable management of stakeholders

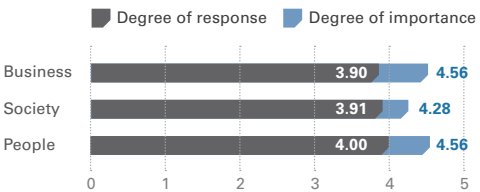
Q. Do you think POSCO E&C fulfills its responsibilities in the managerial growth along with the overall environment and society as a sustainable organization?

(Unit: points)



Q. How important do you think the corresponding area is among the areas of corporate citizenship of POSCO E&C and how would you rate the degree of response of POSCO E&C?

(Unit: points)



\* The survey was conducted by classifying the sustainable management topic pool into the areas of corporate citizenship and the result values of sub-topics were aggregated to derive the score for each area of corporate citizenship.

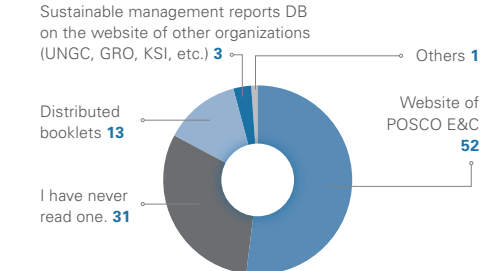
Q. What do you think is an international issue (the U.N. Sustainable Development Goals) that POSCO E&C can effectively address? (Multiple answers permitted)

(Unit: occasion)

SDG 8	Productive recruitment and quality job creation	739
SDG 9	Infrastructure establishment and industrialization promotion	707
SDG 17	Enhanced global partnership for sustainable development	662
SDG 11	Guarantee of access to safe housing and basic living infrastructure	540
SDG 1	Financial aid for low-income vulnerable class	397

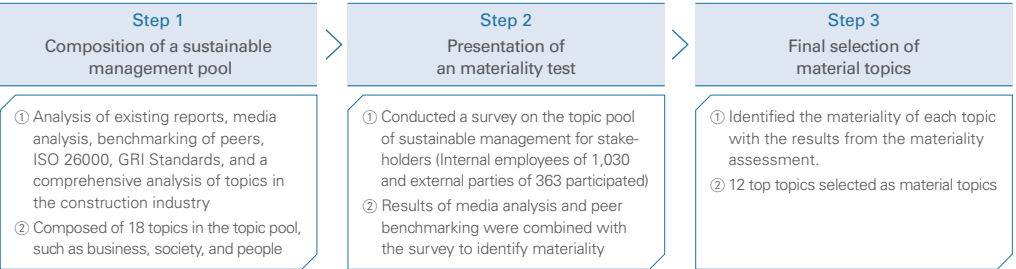
Q. Have you read any sustainable management reports of POSCO E&C? If you have, which route did you come by it?

(Unit: %)

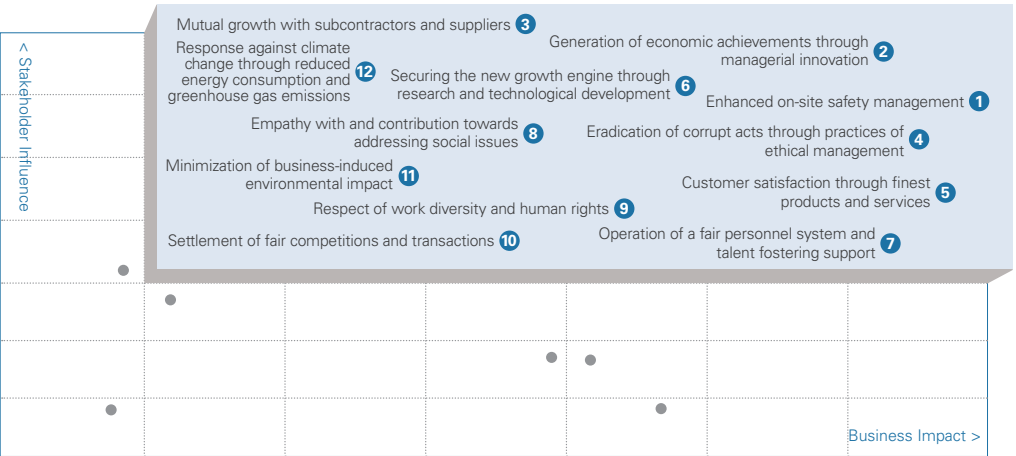


Materiality test

POSCO E&C organized a pool of sustainable management topics based on the indicators of international standards, media analysis, and benchmarking, and compiled the results of surveys on stakeholders to draw priorities for each topic. This report primarily discloses 12 material topics finally selected in the materiality test.



Materiality test results



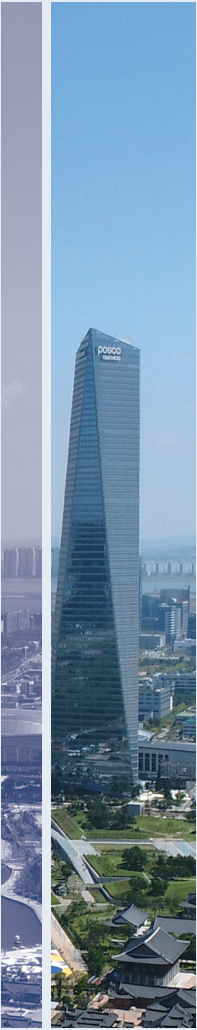
Important topics	Corporate citizenship area	HQ	Do-mestic	Amer-ica	Eu-rope	Africa	Asia	Ocea-nia	Page
① Enhanced on-site safety management	People	●	●	●	●	●	●	●	73-75
② Generation of economic achievements through managerial innovation	Business	●	●	●	●	●	●	●	47-49
③ Mutual growth with subcontractors and suppliers	Business	●	●	●	●	●	●	●	56-57
④ Eradication of corrupt acts through practices of ethical management	Business	●	●	●	●	●	●	●	87-88
⑤ Customer satisfaction through finest products and services	Business	●	●	●	●	●	●	●	51-53
⑥ Securing the new growth engine through research and technological development	Business	●	●						49
⑦ Operation of a fair personnel system and talent fostering support	People	●	●	●	●	●	●	●	77
⑧ Empathy with and contribution towards addressing social issues	Society	●	●	●	●	●	●	●	65-69
⑨ Respect of work diversity and human rights	People	●	●	●	●	●	●	●	77, 79
⑩ Settlement of fair competitions and transactions	Business	●	●	●	●	●	●	●	55, 89
⑪ Minimization of business-induced environmental impact	Society	●	●	●	●	●	●	●	61-62
⑫ Response against climate change through reduced energy consumption and greenhouse gas emissions	Society	●	●	●	●	●	●	●	63

● Topic Boundary : Location of sites where the impacts of materiality topics  
● Reporting Boundary : Location of sites where performances and activities concerning materiality topics are reported in the 2019 Corporate Citizenship Report



# Appendix

Performance Data	93
GRI Contents Index	98
Greenhouse Gas Emissions Assurance Report	101
Third-Party Assurance Report	102
List of Awards and Affiliated Associations	104



## Financial Information

### Summarized Consolidated Financial Statement

Unit \_Million KRW

Classification	2017	2018	2019
[Liquid asset]	4,435,136	3,972,208	4,432,559
Quick asset	3,734,255	3,270,070	3,695,050
Inventory asset	700,881	702,138	737,509
[Non-liquid asset]	2,798,341	2,174,694	2,236,058
Investment asset	371,911	322,295	315,995
Tangible asset	215,755	169,413	319,311
Intangible asset	288,979	216,186	219,746
Other non-liquid asset	1,921,696	1,466,800	1,381,006
Total asset	7,233,477	6,146,902	6,668,617
[Current liabilities]	3,982,056	2,960,072	3,054,663
[Non-current liabilities]	579,490	609,127	795,058
Total liabilities	4,561,546	3,569,199	3,849,721
[Capital]	209,033	209,033	209,033
[Consolidated capital surplus]	1,066,753	1,067,053	1,052,705
[Consolidated accumulated other comprehensive income]	-29,375	-155,224	-160,189
[Consolidated retained earning]	1,380,541	1,415,003	1,555,895
[Non-controlling equity]	44,979	41,838	161,452
Total equity	2,671,931	2,577,703	2,818,896

### Consolidated statement of comprehensive income - summary

Unit \_Million KRW

Classification	2017	2018	2019
Revenue	7,019,190	7,027,980	7,650,251
Operating income (loss)	300,372	304,150	247,525
Continuing operating income before income tax (loss)	189,654	379,523	259,538
Net incomes from continuing operations (loss)	80,315	133,465	172,668
Current net income (loss)	80,315	133,465	172,668
Net income in controlling interest (loss)	81,891	136,421	174,576
Net loss in non-controlling interest	-1,576	-2,955	-1,908
Earnings per share from continuing operations (loss)	1,959	3,263	4,176
Companies included in the consolidation	26companies	24companies	23companies



## Economic Performance

### Revenue by business area

Unit \_100 Million KRW

Classification	2017	2018	2019
Plant*	19,490	16,577	14,610
Building works	41,097	47,134	52,260
Global infrastructure	8,105	6,474	8,311
Real estate-related services	1,018	759	381
Technological service	1,114	166	1,792

\* In 2019, the Energy Business Division was incorporated into the Plant Business Division due to the reorganization of business divisions.

### Amount of purchases made from major establishments

Unit \_100 Million KRW

	Classification	2017	2018	2019
Domestic	Construction and service	33,228	33,600	32,246
	Facilities	2,626	3,549	4,340
	Materials	5,655	5,519	5,936
	Total	41,509	42,668	42,522
Overseas	Construction and service	2,566	2,018	2,800
	Facilities	1,322	512	1,849
	Materials	143	77	38
	Total	4,031	2,607	4,687

### Allocation of economic outcomes

Unit \_100 Million KRW

Items	Allocated to	2017	2018	2019
Total wage	Employees	5,424	5,551	6,848
Wage		5,050	5,142	6,340
Severance payment		374	409	508
Total amount spent on purchases	Subcontractors	46,473	46,547	48,421
Outsourcing cost		40,603	40,804	42,360
Raw material purchasing cost		5,870	5,743	6,061
Donation and social contribution	Society	38	42	47
Dividends	Investors	0	209	209
Corporate tax	Country	1,093	2,358	754
Interests	Creditors	567	574	400
Total allocated economic value	-	53,595	55,281	56,675

## Environmental Performance

### Energy consumption by establishment

Unit \_TJ

	Classification	2017	2018	2019
Pohang Headquarters and Songdo Office, etc.*	Fuel	17.71	18.04	25.23
	Electricity	126.18	124.71	173.98
	Steam	15.18	20.97	22.95
	Total	159.07	163.72	222.16
Domestic sites	Fuel	25.22	62.47	90.48
	Electricity	428.34	443.64	621.33
	Total	453.56	506.11	711.81
Total energy consumption by establishment		612.63	669.84	933.97

\* Chungju Institute of Technology and the multi-purpose building in Haengdang-dong were added in 2019

\* Calculated pursuant to the guidelines on the operation, etc. of target energy management of greenhouse gas.

### Amount of raw materials used

	Classification	Unit	2017	2018	2019
Amount of non-renewable raw materials used	Rebar	1,000 tons	272	294	299
	Cement	1,000 tons	120	176	193
	Ascon	1,000 tons	245	29	51
	Remicon	1,000 m³	3,360	3,529	3,348
	Sand	1,000 m³	27	4	15
	Gravel	1,000 m³	6,368	2,489	4,234

### Water resources consumption

Unit \_Ton

	Classification	2017	2018	2019
Amount of water consumption	Water supply	608,920	556,232	566,937
	Groundwater	234,784	225,322	172,262
	Rainwater and gray water	17,628	18,300	12,402
	Total	861,332	799,854	751,601

\*Excluding Headquarters

### Greenhouse gas emissions

	Classification	Unit	2017	2018	2019
Greenhouse gas emissions		tCO <sub>2</sub> e	30,482	33,620	46,903
Scope1		tCO <sub>2</sub> e	2,780	5,311	7,517
	Pohang Headquarters and Songdo Office, etc.*	tCO <sub>2</sub> e	1,040	1,046	1,390
	Domestic construction sites	tCO <sub>2</sub> e	1,740	4,265	6,127
Scope2		tCO <sub>2</sub> e	27,702	28,309	39,386
	Pohang Headquarters and Songdo Office, etc.*	tCO <sub>2</sub> e	6,687	6,761	9,209
	Domestic construction sites	tCO <sub>2</sub> e	21,015	21,548	30,177
Other greenhouse gas emissions Scope3		tCO <sub>2</sub> e	51,952	25,432	25,816
Emissions intensity		tCO <sub>2</sub> e/100 million KRW	0.4825	0.4784	0.6131
	Scope1	tCO <sub>2</sub> e/100 million KRW	0.0440	0.0756	0.0983
	Scope2	tCO <sub>2</sub> e/100 million KRW	0.4385	0.4028	0.5148

\*Chungju Institute of Technology and the multi-purpose building in Haengdang-dong were added in 2019

\*Scope1, 2 Calculation criteria: Calculated pursuant to the guidelines on the operation, etc. of target energy management of greenhouse gas.

### Amount of wastewater discharged

Unit \_ton

2017	2018	2019
195,600	188,973	146,100

### Amount of waste generated

	Classification	Unit	2017	2018	2019
Amount of waste generated (by treatment)	Recycled	ton	355,545	589,419	584,934
	Incinerated	ton	6,455	609	101
	Buried in landfill	ton	217,151	210,649	261,783
	Total	ton	579,151	800,677	846,818
Ratio of recycled waste		%	61.4	73.6	69.1
Amount of waste generated (by type)	Designated waste	ton	16	0	0
	Industrial waste	ton	3,431	138	48
	Construction waste	ton	575,703	800,539	846,770
	Total	ton	579,150	800,677	846,818
Cost of waste treatment		million KRW	14,800	18,415	19,392



Social Performance

Status of employees

Classification			Unit	2017	2018	2019
Status of employees	Total employees		persons	5,466	5,513	5,555
	Number of disabled employees		persons	41	37	54
	Ratio of disabled employees		%	0.8	0.7	0.9
Detailed status of employees	Employees		persons	5,428	5,479	5,526
	By type of employment	Permanent	persons	3,600	3,689	3,678
		Non-permanent	persons	1,828	1,790	1,848
	Gender	Male	persons	4,878	4,928	5,006
		Permanent	persons	3,429	3,507	3,492
		Non-permanent	persons	1,449	1,421	1,514
		Female	persons	550	551	520
		Permanent	persons	171	182	186
		Non-permanent	persons	379	369	334
	By age	Less than 30 years old	persons	520	558	562
		30-50 years old	persons	4,162	4,044	4,032
		51 years or older	persons	746	877	932
	By region	Domestic	persons	4,972	5,103	5,245
		Southeast Asia	persons	220	256	200
		China	persons	11	15	13
		India/Pakistan	persons	11	10	10
		Middle East/Africa	persons	106	49	28
		North and Central America	persons	75	32	4
		South America	persons	21	10	24
		Europe/CIS	persons	5	3	1
		Oceania	persons	7	1	1
		National veterans	persons	65	61	57
	Diversity of employees	Foreign nationals	persons	2	4	3
		Former officers	persons	108	120	127
Detailed status of executives	Executives		persons	38	34	29
	Gender	Male	persons	38	34	29
		Female	persons	0	0	0
	By region	Domestic	persons	33	32	26
		Overseas	persons	5	2	3

\* As for executives, one person is under 50 years of age, while all others are aged 50 or older

New recruits and retirees

Classification		Unit	2017	2018	2019
Number of new recruits		persons	668	149	101
Male		persons	640	132	87
Female		persons	28	17	14
Ratio of new recruits		%	16.8	3.8	2.6
Resigned/retired employees		persons	47	67	71
Male		persons	43	61	66
Female		persons	2	6	5
Ratio		%	1.31	1.82	1.92

\* New recruits include both regular and non-regular positions, excluding those who are employed on-site

\* Retirees include regular workers only

Workers subject to collective agreements

Classification		2017	2018	2019
Number of employees subject to union		762	1,128	1,225
Total number of union members		2	2	2

POSCO E&C maintains a smooth labor-management communication relationship as the Company immediately shares any significant managerial modifications to its employees.

Employee education

Classification		Unit	2017	2018	2019
Hours of education per person		hours	50	69	59
Cost of education per person		thousand KRW	738	631	540

Number of deaths caused by accidents or illness during the course of employment

Classification		2017	2018	2019
Subcontractor		2	10	1
POSCO E&C		0	0	0

Local community

Classification		Unit	2017	2018	2019
Volunteer work by employees	Hours of volunteer work per person	hours	24.6	22.4	17.7
	Total hours of volunteer work	hours	114,784	109,897	97,752
Social contribution investment	1% sharing voluntary contribution of employees	100 million KRW	4.4	4.5	5.4
	Total amount of contribution in 1% sharing activities*	100 million KRW	8.8	9.0	10.8

\* Based on the sum of contributions made by employees and the amount supported by the matching grant

Parental leave

Classification		Unit	2017	2018	2019
People on parental leave_female		persons	20	10	10
People on parental leave_male		persons	10	20	20
In continuous employment of one year or longer after return from parental leavea_female		persons	13	13	19
In continuous employment of one year or longer after return from parental leave_male		persons	2	5	9
Employees eligible for parental leave return		persons	21	29	34
Post-childcare leave returnees		persons	18	29	32
Rate of continuous service of over 12 months		%	100.0	100.0	96.6
Return rate		%	85.7	100.0	94.1

Handling of employee grievances






Classification		Unit	2017	2018	2019
Received opinions of handled employee grievances		cases	494	519	534
Cyber Sinnungo		cases	3	1	4
The Plus Square		cases	491	518	530
Average number of days to answer		days	1.7	1.25	1.38

Ratio of performing periodic performance evaluations

Classification		2017	2018	2019
Ratio by gender	Male	99.3	98	98
	Female	89.5	91	93
Ratio by employment type	Permanent	98.9	98	98
	Non-permanent	98.4	93	92














GRI Contents Index

Universal standards					
Topic	Disclosure	ISO 26000	Page	Assurance	UN SDGs
Organizational profile	102-1	6.3.10/ 6.4.1-6.4.2/ 6.4.3/6.4.4/ 6.4.5/6.8.5/78	1	✓	
	102-2		16-39	✓	
	102-3		180 Daesong-ro, Nam-gu, Pohang, Gyeongsangbuk-do	✓	
	102-4		8-9	✓	
	102-5		6-7	✓	
	102-6		8-9	✓	
	102-7		6-7, 93-94, 96	✓	
	102-8		93-94	✓	
	102-9		The supply chain proceeds through the phases of design-purchase-construction-main-tenance. POSCO E&C improves the productivity through a process where all business partners take part in the pre-construction phase by promoting smart construction.	✓	
	102-10		Business Report 3~18p	✓	
	102-11		86	✓	
	102-12		44-45	✓	
	102-13		104	✓	
Strategy	102-14	4.7/6.2/7.4.2	4-5	✓	
Ethics and integrity	102-16	4.4/6.6.3	87-89	✓	
Governance	102-18	6.2/7.4.3/7.7.5	85	✓	
Participation of stakeholders	102-40	5.3	90	✓	
	102-41		78	✓	
	102-42		90	✓	
	102-43		90	✓	
	102-44		90-91	✓	
Reporting practices	102-45	5.2/7.3.2/ 7.3.3/7.3.4	93(Business Report 60p)	✓	
	102-46		2	✓	
	102-47		91	✓	
	102-48		None	✓	
	102-49		None	✓	
	102-50	7.5.3/7.6.2	2	✓	
	102-51		2018.9	✓	
	102-52		2	✓	
	102-53		2	✓	
	102-54		2, 98-100	✓	
	102-55		98-100	✓	
	102-56		102-103	✓	
				✓	

Topic-specific Standards						
Topic		Disclosure	ISO 26000	Page	Assurance	UN SDGs
Topic 1: Enhanced on-site safety management						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		72, 91	✓	 
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	
Industrial safety and health	403-1	Ratio of workers who represent the safety and health committee jointly participated by labor and management	6.4.6 6.4.6/6.8.8	The safety and health committee is run at each project site, and matters determined through the committee are applied to all workers.	✓	
	403-2	Injury types, injury ratio, ratio of illness during the course of employment, ratio of days on leave of absence, ratio of absenteeism, number of work-related deaths		73, 97 - Accident types: Falls, crushing, slips, flying objects, falling objects, herd behavior, collisions, and others - Lost workdays: Not Available	✓	
Topic 2: Generation of economic achievements through managerial innovation						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		46, 91	✓	
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	
Economic outcome	201-1	Generation and distribution of direct economic values	6.8.1-6.8.2/ 6.8.3/6.8.7/6.8.9	93-94	✓	
Topic 3: Mutual growth with subcontractors and suppliers						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		54, 91	✓	 
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	
-	-	Outcome of technical cooperation with subcontractors		57	✓	
Topic 4: Eradication of corrupt acts through practices of ethical management						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		87-89, 91	✓	
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	
Anti-corruption	205-2	Notification and training on anti-corruption policies and procedures	6.6.1-6.6.2/6.6.3	88	✓	
Topic 5: Customer satisfaction through finest products and services						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		50, 91	✓	
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	
Customer safety and health	416-2	Violations of laws on pertaining to the safety and health regarding products and services and voluntary regulations	4.6/6.7.1-6.7.2/ 6.7.4/6.7.5/6.8.8	63	✓	
Topic 6: Securing the new growth engine through research and technological development						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		46, 91	✓	
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	
-	-	R&D investment / R&D investment ratio against revenue		49	✓	
Topic 7: Operation of a fair personnel system and talent fostering support						
GRI 103: Management Approach	103-1	Description of material topics and topic scopes		76, 91	✓	 
	103-2	Management approach and composition			✓	
	103-3	Assessment of management approach			✓	



GRI Contents Index

Topic		Disclosure		ISO 26000	Page	Assurance	UN SDGs
Employment	401-1	Ratio of new recruits and employees with previous experience		6.4.3	97	√	 
	401-2	Welfare benefits provided to full-time employees only		6.4.4/6.8.7	78	√	
	401-3	Parental leave		6.4.4	-Total number of employees that were entitled to parental leave: Not Available -Number and rate of parental leave: 97p	√	
Training and education	404-1	Average training hours that each worker undergoes each year		6.4.7	77	√	
	404-2	Programs to enhance the capacity and manage the career of workers		6.4.7/6.8.5	77	√	
	404-3	Ratio of workers who undergo periodic reviews for their work performance and career development		6.4.7	97	√	
Topic 8: Empathy with and contribution towards addressing social issues							
GRI 103: Management Approach	103-1	Description of material topics and topic scopes			64, 91	√	   
	103-2	Management approach and composition				√	
	103-3	Assessment of management approach				√	
Local society	413-1	Business establishments that perform local society engaging activities, impact assessment and development programs		6.3.9/6.5.1-6.5.2/6.5.3/6.8	65-71	√	
Topic 9: Respect of work diversity and human rights							
GRI 103: Management Approach	103-1	Description of material topics and topic scopes			76, 91	√	 
	103-2	Management approach and composition				√	
	103-3	Assessment of management approach				√	
Diversity and equal opportunities	405-1	Diversity in the governance organization and employees		6.2.3/6.3.7/6.3.10/6.4.3	96	√	
Human right assessment	412-2	Education of employees on human right policies and procedures		6.3.5	79, 88	√	
Topic 10: Settlement of fair competitions and transactions							
GRI 103: Management Approach	103-1	Description of material topics and topic scopes			54, 91	√	 
	103-2	Management approach and composition				√	
	103-3	Assessment of management approach				√	
Competition-undermining conducts	206-1	Legal actions for competition-undermining conducts, and unfair transactions such as monopoly		6.6.1-6.6.2/6.6.5/6.6.7	No sanctions imposed in relation to fair trade in 2019	√	
Topic 11: Minimization of business-induced environmental impact							
GRI 103: Management Approach	103-1	Description of material topics and topic scopes			60, 91	√	 
	103-2	Management approach and composition				√	
	103-3	Assessment of management approach				√	
Water	303-1	Quantity of water intake by source		6.5.4	95	√	
Wastewater and waste	306-2	Weight of waste by type and treatment method		6.5.3	95	√	
Topic 12: Response against climate change through reduced energy consumption and greenhouse gas emissions							
GRI 103: Management Approach	103-1	Description of material topics and topic scopes			60, 91	√	 
	103-2	Management approach and composition				√	
	103-3	Assessment of management approach				√	
Energy	302-1	Energy consumption within the organization		6.5.4	94	√	
Emissions	305-1	Direct greenhouse gas emissions(scope 1)		6.5.5	95	√	
	305-2	Indirect energy greenhouse emissions(scope 2)				√	
	305-3	Other indirect greenhouse emissions(scope 2)				√	

Greenhouse Gas Emissions Assurance Report

Verification standards and scope

POSCO E&C Co., Ltd. has requested Lloyd's Register Quality Assurance Ltd. to provide independent verification of the company's 2019 greenhouse gas emissions and energy consumption statement (hereinafter referred to as the "statement"). The standards applied for this verification were "Guidelines on the Operation of Target Energy Management of Greenhouse Gases" and were carried out under the "Guidelines on the Verification for the Operation of Greenhouse Gas Emission Trading System."

The statement covers direct and indirect greenhouse gas emissions and energy consumption.

Management responsibility

The responsibility of Lloyd's Register Quality Assurance Ltd. is limited to POSCO E&C, and it holds no obligation or responsibility for any other person or organization. POSCO E&C's management remains responsible for the preparation of the statement and for maintaining effective internal control of the data and information contained in the statement. Ultimately, the statement has been approved by POSCO E&C and is under the responsibility of POSCO E&C.

Verification method of Lloyd's Register Quality Assurance Ltd

The verification of Lloyd's Register Quality Assurance Ltd. was carried out at a reasonable level of assurance pursuant to the "Guidelines on the Verification for the Operation of Greenhouse Gas Emission Trading System".

This verification was conducted through sampling and the following activities were carried out as part of the evidence collection.

- On-site inspection of workplace facilities was conducted and the system for managing data and records related to greenhouse gas emissions and energy consumption were reviewed.
- Employees responsible for managing data and records related to greenhouse gas emissions and energy consumption were interviewed.
- In 2019, data and records related to greenhouse gas emissions and energy consumption were verified with the level of source data.

Standards and importance of assurance

The opinions expressed in this verification statement are based on the verification at a reasonable standard of verification and are derived based on the expert judgment of the verification examiners and the 5% importance criteria.

Opinions of Lloyd's Register Quality Assurance Ltd.

The verification results based on the approach of Lloyd's Register Quality Assurance Ltd. present "adequate" opinions on greenhouse gas emissions in the “Guidelines on the Operation of Target Energy Management of Greenhouse Gases” and “4. Verification Conclusions” in the statement.

March 28, 2020

Verifying agency \_Lloyd's Register  
CEO \_Lee Il-hyeong



Third-party assurance report

LR Independent Assurance Statement

Relating to POSCO Engineering & Construction Ltd.’s Corporate Citizenship Report for the 2019 calendar year



This Assurance Statement has been prepared for POSCO Engineering & Construction Ltd. in accordance with our contract but is intended for the readers of this Report.

Terms of engagement

Lloyd's Register Quality Assurance Limited (LR) was commissioned by POSCO Engineering & Construction Ltd. (POSCO E&C abbreviated) to provide independent assurance on its '2019 POSCO E&C Corporate Citizenship Report' ("the report") against the assurance criteria below to a "moderate level of assurance and materiality" using "Accountability's AA1000AS (2008)," where the scope was a Type 2 engagement. Our assurance engagement covered POSCO E&C's operations and activities in Korea specifically the following requirements:

- Evaluating adherence to the AA1000 AccountAbility Principles<sup>1</sup> of Inclusivity, Materiality and Responsiveness
- Confirming that the report is in accordance with GRI Standards<sup>2</sup> and core option
- Evaluating the accuracy and reliability of data and information for only the selected indicators listed below:
  - GRI 200 (Economic): 201-1, 205-2, 206-1
  - GRI 300 (Environmental): 302-1, 303-1, 305-1, 305-2, 305-3, 306-2
  - GRI 400 (Social): 401-1, 401-2, 401-3, 403-1, 403-2, 404-1, 404-2, 404-3, 405-1, 412-2, 413-1, 416-2
  - Other topic-specific disclosures<sup>3</sup>: Performances of technological cooperation with business partners

Our assurance engagement excluded the data and information of POSCO E&C's suppliers, contractors and any third-parties mentioned in the report.

LR's responsibility is only to POSCO E&C. LR disclaims any liability or responsibility to others as explained in the end footnote. POSCO E&C's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of POSCO E&C.

LR's Opinion

Based on LR's approach nothing has come to our attention that would cause us to believe that POSCO E&C has not, in all material respects:

- Met the requirements above
- Disclosed accurate and reliable performance data and information as all errors or omissions identified during the assurance engagement were corrected
- Covered all the issues that are important to the stakeholders and readers of this report.

The opinion expressed is formed on the basis of a moderate level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a moderate assurance engagement is less than for a high assurance engagement. Moderate assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a moderate assurance engagement is substantially lower than the assurance that would have been obtained had a high assurance engagement been performed.

LR's approach

LR's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing POSCO E&C's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing documents and associated records.
- Reviewing POSCO E&C's process for identifying and determining material issues to confirm that the right issues were included in their Report. We did this by benchmarking reports written by POSCO E&C and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether POSCO E&C makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing POSCO E&C's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification. We also spoke with those key people responsible for compiling the data and drafting the report.
- Reviewing additional evidence made available by POSCO E&C at their Songdo Office in Incheon City.
- Checking that the GRI Content Index allows stakeholders to access sustainability indicators

Observations

Further observations and findings, made during the assurance engagement, are:

• <b>Stakeholder inclusivity</b>	We are not aware of any key stakeholder groups that have been excluded from POSCO E&C's stakeholder engagement process.
• <b>Materiality</b>	We are not aware of any material issues concerning POSCO E&C's sustainability performance that have been excluded from the report. It should be noted that POSCO E&C has established extensive criteria for determining which issue/aspect is material and that these criteria are not biased to the company's management.
• <b>Responsiveness</b>	POSCO E&C needs to ensure that its principles of human rights are applied to all purchasing practices. Currently, POSCO E&C's principles of human rights are applied to suppliers for overseas construction projects only. We recommend that POSCO E&C applies this approach to domestic construction projects as well.
• <b>Reliability</b>	POSCO E&C has reliable data management systems for the indicators in the report.

LR's standards, competence and independence

LR implements and maintains a comprehensive management system that meets accreditation requirements for ISO 14065 Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition and ISO/IEC 17021 Conformity assessment – Requirements for bodies providing audit and certification of management systems that are at least as demanding as the requirements of the International Standard on Quality Control 1 and comply with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants.

LR ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LR is POSCO E&C's certification body for ISO 9001, ISO 14001, ISO 45001 and ISO 27001, and verification body for its greenhouse gas emissions. We also provide POSCO E&C with a range of training services related to management systems. The verification and certification assessments, together with the training, are the only work undertaken by LR for POSCO E&C and as such does not compromise our independence or impartiality.

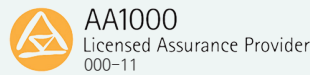
Dated: 29th April 2020

LR Lead Verifier **Tae-Kyoung Kim**

On behalf of Lloyd's Register Quality Assurance Limited

17th Floor, Sinsong Building, 67 Yeouinaru-ro, Yeongdeungpo-gu, Seoul, Korea

LR reference: SEO00000629



1 <https://www.accountability.org>  
2 <https://www.globalreporting.org>  
3 Topic-specific disclosures which are reported in the GRI Content Index but not covered by the topic-specific Standards of the GRI

Lloyd's Register Group Limited, its affiliates and subsidiaries, including Lloyd's Register Quality Assurance Limited (LRQA), and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract. The English version of this Assurance Statement is the only valid version. Lloyd's Register Group Limited assumes no responsibility for versions translated into other languages.

This Assurance Statement is only valid when published with the Report to which it refers. It may only be reproduced in its entirety.

Copyright © Lloyd's Register Quality Assurance Limited, 2020. A member of the Lloyd's Register Group.



# List of Awards and Affiliated Associations

## List of awards

March 2018

Grand Prize in the Pioneer category in the Overseas Construction Award

August 2018

Grand Prize in the Masterpiece Housing of Korea

October 2018

Excellent Prize in the Korean Architecture Award

October 2018

Grant Prize in the Social Contribution category in the Asia Today Green Construction Award

October 2018

Excellence Prize in the Ubiquitous category in the E-Today Smart Construction Award

November 2018

Ministerial Award of Land, Infrastructure and Transport in the 11th Green Housing Award

November 2019

Ranked top in the construction category in the Korean Sustainability Conference

November 2019

Excellence Prize in the BIM Awards

November 2019

Selected as an excellent company for quality competitiveness in the 45th Korean National Quality Awards

November 2019

Presidential Prize for Excellent Quality Task Distribution in the 45th Korean National Quality Awards

November 2019

Chairperson's Prize from the Environment and Labor Committee of the National Assembly in the Best Practices Competition for Construction Environmental Management

November 2019

Ministerial Award of Environment in the Best Practices Competition for Construction Environmental Management

November 2019

Ministerial Award of Land, Infrastructure, and Transport in the Best Practices Competition for Construction Environmental Management

November 2019

Citation from the head of the Jugbu Employment and Labor Administration

December 2019

Construction Cooperation Enhancement Award

## Affiliated Associations

Building SMART Korea	Construction Guarantee Cooperative	Construction Expert Association	Construction Association of Korea
The Society of Air-conditioning and Refrigerating Engineers of Korea	Korean Society of Civil Engineers	Chamber of Commerce	Korean Society of Steel Construction
Korea Federation of Construction Contractors	Korea Institute of Construction Technology Management	Korea Construction Engineers Association	Korea Construction Quality Research Group
Korea Institute of Building Construction	Korea Desalination Plant Association	Korea Road Association	Korea Remodeling Association
Korea Industrial Technology Association	Korea Water Resources Association	Korea Engineering and Consulting Association	Korea Electric Engineers Association
Korea Housing Association	Steel Construction Center, Korea Iron & Steel Association	Korea Railway Construction Association	The Korean Society for Railway
Korea Railway Association	Council on Tall Building and Urban Habitat Korea	Korea Concrete Institute	Korea Plant Industries Association
Korea Ports & Harbors Association	Korean Society of Coastal and Ocean Engineers	Korea Environment Industry Association	International Contractors Association of Korea

## POSCO E&C CORPORATE CITIZENSHIP REPORT 2019

For more details about the report, please visit POSCO E&C's homepage and download the PDF version of the report.

Team	CSR Group, Communication Office, POSCO E&C
Address	241 Incheon tower-daero, Yeonsu-gu, Incheon, Korea
Telephone	+82. 32. 748. 3737
Website	www.poscoenc.com